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ABSTRACT

This study is one of a series of 15 which comprises a comprehensive report on the supply of secondary level teachers in English-speaking Africa. Each is focused on the problem of determining the likely demand for overseas personnel for staffing secondary level institutions through 1975, and each attempts to analyze the problem of teacher supply within the context of the social and economic conditions of the country. The experience in Kenya is unique in several respects and is particularly influenced by the rapid development of self-help or harambee schools which have led to the very rapid growth of the educational system in the past decade. The staffing needs of these schools will influence the need for further expatriate assistance. Another unique feature is the recognition through newly-approved salary scales of the specialized nature of the task of the teacher educator, and a third is the high priority which the government has given to the staffing of all secondary level institutions. Other topics examined include the projected expansion of other types of secondary level education, programs for the preparation of teachers, major factors in their recruitment and retention, projected gaps in the teaching force, priorities in the provision and use of expatriate teachers, and recommendations of primary concern to Kenyan authorities. Related documents are ED 045 613 through ED 045 620. (MBM)

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SECONDARY LEVEL TEACHERS: SUPPLY AND DEMAND IN

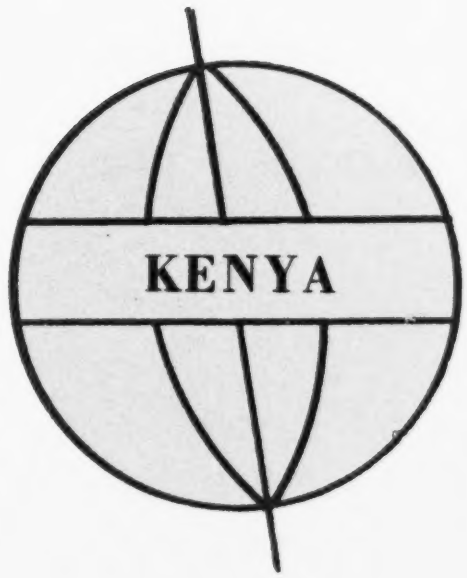

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TABLE OF CONTENTS

PREFACE

INTRODUCTION..... 1
Social, Economic and Demographic Factors likely to Influence Educational Development 1
Land, People and Economy 2
The Strength of the Economy and Potential Economic Constraints on Education 6

SECTION I: RECENT AND PROSPECTIVE DEVELOPMENT OF SECONDARY SCHOOLS IN KENYA..... 11
The Recent Development Plan and Actual Performance... 13
The Potential Impact of Expansion of Primary Education 15
The Development of Harambee Schools..... 20
Other Educational Options Open to Primary School Leavers.... 27
The Potential Impact of Efforts to Equalize Opportunity for Secondary Education by Geographic Region..... 30
Constraints Likely to Affect Expansion of Secondary Schools.... 32

SECTION II: PROJECTED EXPANSION OF OTHER TYPES OF SECONDARY LEVEL EDUCATION..... 41
The Projected Development of Primary Teacher Training in Kenya..... 41
Projected Expansion of Secondary Technical and Vocational Education..... 46
Probable Expansion of Lower and Intermediate Agricultural Training Through 1975..... 51

SECTION III: PRODUCTION AND RETENTION OF SECONDARY LEVEL TEACHERS..... 55
The Expatriate Component at the End of the 1960's.... 55
The Supply and Quality of Secondary School Staff in Recent Years..... 55
Projected Localisation of the Secondary School Teaching Force in the Kenya Development Plan, 1970-1974..... 61
Kenyan Programs for the Preparation of Technical Teachers and Industrial Arts Teachers..... 75
The Kenyan Program for the Preparation of Agricultural Teachers for Secondary Schools and Teachers Colleges 80
Kenyan Programs for the Preparation of Other Practical Arts Teachers..... 84
The Kenyan Program for the Preparation of Teachers College Tutors..... 87
Major Factors in the Recruitment and Retention of Teachers..... 89

SECTION IV: PRINCIPAL PRIORITIES, PROJECTIONS AND RECOMMENDATIONS..... 97

Projected Gaps in the Kenyan Teaching Force and Priorities in the Provision and Use of Expatriate Teachers..... 98

Recommendations of Primary Concern to Kenyan Authorities..... 105

APPENDICES

REFERENCES QUOTED

LIST OF TABLES

		Page
1.	Cross-Tabulations of the Education of the Migrants & Education of their Fathers (Percentage)	3
2.	Projected Population by Age ('000 Population)	5
3.	Percentage Primary Age Children at School According to Projects ('000)	6
4.	Gross Domestic Product at Factor Cost, Current Prices (KE Million)	7
5.	G.P.D. Per Capita Worker in Agriculture and Non-Agriculture	7
6.	Average Wage as a Percentage of G.D.P. Per Worker	8
7.	Recurrent Educational Expenditure in Total Government Recurrent Expenditure	9
8.	Growth According to Plan 1965-1970 (Maintained and Assisted Schools)	14
9.	Teachers in Service by Type of School, 1960-1969	16
10.	Projected Enrolment in Kenya Primary School System on Assumption of Six Percent Annual Increase in Standard I Intakes, Development Plan, 1970-1974	17
11.	Estimated 1967 Occupations of 1966 Primary School Leavers	18
12.	The Development of Secondary Schools for African Students in Kenya, 1945-1968	21
13.	Curricular Offerings in Harambee Schools, 1966	23
14.	Harambee School Candidate Results in the Kenya Junior Secondary School Examination, 1967	24
15.	Regional Variations in Provision of Education, 1967-1968	31
16.	Projected Recurrent Expenditure for Education KE 000	34
17.	A.Planned Expansion of Secondary Education, 1968-1974	36
17.	B.Enrolment in Kenya Secondary Schools, 1968 and Projected (Maintained and Assisted Schools Only)	36

18. Requirements and Supply of Primary School Teachers 42

19. First Year Enrolments, Primary Teacher Training Colleges. 43

20. Output of Primary Teachers from Teachers Training Colleges 43

21. Performance on Teacher Certificate Examination, 1970 ... 44

22. Agricultural Education Commission Estimates of Additional Staff Required for Farmers Training Centers, 1970-1980 53

23. Projected Students Enrolments and Output at Agricultural Training Institutions (Kenya Development Plan, 1970-1974) 53

24. Staffing of Secondary Schools in Recent Years 56

25. Development Plan Projections of the Demand and Supply for Teachers: Secondary Schools and Primary Teacher Training Colleges (Maintained and Assisted Schools) 62

26. Planned Production of Teachers for Secondary Schools and Primary Teacher Training Colleges (Kenya Development Plan 1970-1974) 63

27. Degree and Post Graduate Students Studying Education in the University of Nairobi (Formerly University College Nairobi) 65

28. Initial Plan for Kenyan Support of KSTC Staff (Presumably Kenyans) 73

29. Anticipated Intake of Technical Teacher Trainees to Meet Estimated Demand 77

30. Salary Scales for Kenyan Secondary Technical Teachers ... 79

31. Home Economics Students at the University of Nairobi, 1970-1971 85

32. Teachers with Less Than Five Years Teaching Experience (22 School and College Sample) 92

33. Turnover in Kenyan Secondary Schools & Teachers Colleges, 1966, 1967, and 1968 93

34. Reasons Teachers Leave Schools as Reported by School Principals and Headmasters, 1966, 1967, and 1968 (Totals) 94

LIST OF APPENDICES

A. Kenya Education System (1971)

B. Growth of Pre-University Education During the 1960's

C. Enrolment in Kenyan Primary Schools

D. Secondary School Enrolments by Form

E. Secondary School Examination Results

F. Distribution of School Leavers

G. Subject/Period Allocation in Lower Secondary Schools

H. Curriculum in Secondary Vocational Schools (1968)

I. Preliminary Proposals for the Introduction of Business Education Curricula in the General Secondary Schools

J. Curricula in Village Polytechnics

K. Public Service and Teaching Service Salary Scales (Ndegwa Scales)

L. Teachers in Kenyan Secondary Schools, 1969, by Citizenship

M. Education in Central Government Accounts

LIST OF PROJECTIONS

1. Projected Range of Enrolments in Aided Lower Secondary Forms..... 39

2. Projected Range of Enrolment in All Upper Secondary Forms..... 40

3. Projected Enrolments in Primary Teachers Colleges, 1970-1975..... 44

4. Projected Output of Kenyan Graduate Teachers..... 68

5. Projected Output of Diplomate Teachers from Kenyatta College if No Degree Course is Introduced..... 72

6. Projected Ouput from Kenya Science Teachers College (Full Time Teaching Equivalents).... 74

7. Projected Output of Agriculture Teachers for Secondary Schools and Teachers Colleges..... 83

8. Estimated New Well-Qualified (S1 and Degree) Kenyan Secondary Level Teachers Less Approximately 10 Percent to Harambee Schools..... 96

9. Projected Further Demand for Qualified Teachers for Secondary Schools and Teachers Colleges (Aided Schools Only)..... 101

10. Projected Further Demand for Qualified Teachers for Secondary Schools (Unaided Including Harambee Schools)..... 104

DIAGRAMS

1. Technical Education in Kenya..... 48

PREFACE

This study of the supply of secondary level teachers in Kenya is one of fifteen studies which together with a final volume of summary and analysis will comprise a comprehensive Report on the Supply of Secondary Level Teachers in English-speaking Africa. Although the studies are not intended to be identical in approach or format, each is focused on the problem of determining the likely demand for overseas personnel for staffing secondary level institutions through 1975. Each study attempts to analyze the problem of teacher supply within the context of the social and economic factors which largely determine its nature and govern potential solutions. It is to be expected, therefore, that many of the same ingredients and dimensions will appear in all studies, although the saliency or significance of individual factors will vary from country to country. No pretense is made that precise numerical needs can be projected with certainty; rather the projections made are at best "order of magnitude" estimates of likely needs, disaggregated insofar as possible by such characteristics of teachers as their teaching fields, qualifications and experience, and source.

It is hoped that the studies will assist those in institutions concerned directly or indirectly with providing teachers for English-speaking African nations in foreseeing both the magnitude of needs which may arise and the priorities among needs. It is further hoped that the analyses in the studies will be of some assistance to the states under review in recognizing the choices available to them in taking appropriate action. The studies, therefore, contain recommendations to all concerned. Because problems of teacher supply are so intricately bound up in the wider social context of education, it is to be expected that the studies will generally provide the reader with an understanding of the actual and potential place of secondary education in society and economy.

Most studies in this series have necessarily been compiled after relatively little research time in the country concerned. As a result, they rely largely upon the work of those units in the respective Ministries of Education which are concerned with estimating personnel requirements, wherever such units exist. This country study has, however, benefited from extensive analyses of staffing needs in Kenyan schools carried out by Dean Filemona F. Indire of the Faculty of Education at the University of Nairobi, who has participated throughout in preparing this study. Wherever hard data have been available we have relied upon these; but where statistical data have not been available we have not hesitated to assess our respective experiences and to rely on judgmental data based either upon our own experience or upon that of those in whom we have confidence.

The experience of Kenya in staffing its secondary level institutions is unique in several respects. Perhaps first, and most uniquely, the Kenyan experience is influenced by the rapid development of self-help or harambee schools. These schools have provided the growing edge of the Kenyan educational system and have led to the very rapid growth of that system during the decade just past. As these schools have regularly been less adequately staffed and equipped than the aided schools, they continue to demonstrate marked needs for well-qualified staff. The size of the need for further expatriate assistance in staffing secondary level institutions will thus depend in no small measure upon the extent to which expatriates (especially volunteers) take up positions in harambee schools and upon the extent to which Kenyans choose or are appointed to these schools. It is our belief that if these schools are to be regarded as part of the Kenyan school system it is inappropriate to overlook their staffing needs and treat them as second class citizens in the system.

The second unique feature in the Kenyan system is one of even more recent birth--this is the recognition through newly approved salary scales of the specialized nature of the task of the teacher educator. We are especially pleased to point out the special recognition which is given to teacher educators in the scales which were recommended by the recent Ndewga Commission, scales which have already been accepted and put into effect by the Kenya Government. We view the introduction of these scales as a genuine breakthrough in the history of education in Africa.

The third noteworthy feature of the Kenyan situation is the high priority which the Government has given to the staffing of all secondary level institutions. This is reflected in part in the large proportion of University of Nairobi students whom it is intended shall go into teaching; it is reflected even more directly in the additional programs which have been created at Kenya Science Teachers College, Egerton College, and Kenyatta College. Now that provision is being made to allow persons who have previously gained their diplomate qualifications to advance to degrees, and to encourage mature teachers to go on for higher qualifications, we believe that a genuinely professional teaching cadre characterized by high morale is certain to develop.

Several other reports which deal directly or tangentially with problems of teacher supply in Kenya deserve mention. In 1968 Olov Bergman and David Williams prepared an initial study, focussing especially upon the need for science teachers. More recently a team representing the American Association of Colleges for Teacher Education studied Kenya in a three-nation Analysis of Teacher Education in East Africa. As the first of these studies preceded the planning which went into the new Development Plan, and as the second was based almost exclusively upon the projections in the Plan, we believe that our present study in part updates these earlier analyses. Even more recently, finally, Dr. Beulah M. Raju has amassed a body of extremely valuable data in her publication Problems and Prospects in Educational Planning in Kenya, a publication of the UNESCO/UNDP Project in the Faculty of Education at the University of Nairobi. Her study presents much of the background which our own more modest study could not encompass.

Appreciation is due to many for making this report possible. The Report on the Supply of Secondary Level Teachers is a Project of the Overseas Liaison Committee of the American Council on Education which established the broad outlines of the study. The Afro-Anglo-American Program in Teacher Education for Africa (now the Association for Teacher Education in Africa), the Association of Universities and Colleges of Canada, and the Inter-University Council of the United Kingdom have joined with the Overseas Liaison Committee in sponsoring the study. The Steering Committee for the study, identified on the title page, is representative of these organizations and has been invaluable in giving the studies reasonable focus and in determining how the studies could be of maximum impact. The Overseas Development Administration of the United Kingdom was most helpful in making preliminary arrangements for many of the studies and generously provided the services of Dr. D.J.S. Crozier who participated directly in the field research for several studies and has provided valuable criticism of others. Ann Keller and Besa Vincent Kotati have helped in gathering or analyzing data for this study; Dr. B. Raju has provided helpful suggestions and criticisms, and Betty White has provided great help in preparing this manuscript for publication. The project has been generously funded by the Ford Foundation, the Midwest Universities Consortium for International Activities, and the Office of International Programs at Michigan State University.

It would have been impossible to have completed this study of Kenyan education without the cordial and authoritative cooperation of various educational administrators. We should like to express our particular appreciation to Mr. K. Mwendwa, former Chief Education Officer; Mr. Y. Komora, present Chief Education Officer; Mr. D. C. King, former Adviser on Technical Education; Mr. S. Kimalel, former Principal of Kenyatta College; Mr. J. Lijembe, Head of the Kenya Institute of Education; and Mr. F.C.A. Cammaerts, former Head of the Department of Education at the University of Nairobi. I should like to express my own appreciation to Dr. Indire for the great amount of time and effort he has given to the study on top of other pressing and time-consuming duties. In this, as in all reports in this series, the judgments expressed are, of course, those of the authors and do not necessarily reflect points of view of the sponsoring organizations.

John W. Hanson
Michigan State University
September, 1971

INTRODUCTION

SOCIAL, ECONOMIC AND DEMOGRAPHIC FACTORS LIKELY TO INFLUENCE EDUCATIONAL DEVELOPMENT

Kenya achieved her independence in December, 1963. As in many countries in Africa, Independence found Kenya with an acute shortage of local middle- and high-level manpower. Also as in other countries in British-related Africa, the years immediately prior to Independence had seen a belated effort to make good this shortage, the slower and more deliberate rate of expansion of educational opportunities for Africans having been greatly accelerated to provide the personnel who would face the new problems and realize the potentialities which Independence would bring in its train. For the first four years after Independence, Kenyan post-secondary schools and the Kenyan economy were easily able to absorb all those who possessed their secondary level certificates of education. In 1968, the task of placing such students became more difficult and it was not until October of that year that jobs or places in further education had been found for the 7,000 youngsters who secured their secondary school certificates. The following year the number of new certificate holders swelled to 14,000 and neither Government nor the private sector could find wage employment for all those who did not go on to further schooling. So acute had the problem of general unemployment become by 1970 that salaries were frozen for a year from June 1970. All firms employing 10 or more persons were required to increase by 10 percent the number of their employees for one year. It was also in this year that large numbers of students from Harambee schools (the self-help secondary schools which community after community in Kenya had constructed) began to reach their secondary school leaving examinations.

The fact that this problem will grow rather than diminish in recognized in the Development Plan, 1970-1974, which states inter alia:

> The number of primary school leavers entering the labour force (during the Plan period) will be more than one-half million, almost all of whom must be absorbed into agricultural and other types of rural employment, because there will not be a sufficient number of urban wage jobs created to absorb them. During the same period of time, over 138,000 secondary school leavers, approximately 70,000 of whom will be in possession of a Form IV education, will enter the labour force. Many of these secondary school leavers will have difficulty finding urban wage employment and, it is estimated that by 1974, less than

> one-half will be able to do so...The possession of a Standard VII, Form II or Form IV education will not, in itself, provide an automatic assurance of wage employment as has been the case in the past. Wage employment will be available only to those who are in possession of needed skills or those who have other qualities which will render them attractive to employers.

For this reason the new Development Plan concerns itself not only with maintaining economic growth but with implementing an employment program. By 1974 the Government hopes that the economy will have expanded sufficiently to provide an additional 375,000 wage paid jobs, of which 200,000 will not be in agriculture. That even this rate of expansion will still leave an economy which is not **primarily a wage economy is** revealed by the fact that even if these latter targets are met, the percentage of the labour force which is in the wage economy will only have increased from 25 percent to 28 percent.

This is the most difficult problem which those responsible for secondary education in the years immediately ahead must face: how will it be possible to effect a reconciliation between the output of secondary certificate holders and others with some or a complete secondary education (many of whom are already in secondary schools) with an employment market which is already saturated with the types of secondary school finishers who are being educated in most secondary schools today. Although Kenya possesses one of the most promising economies in Africa, this is not a problem which can be solved within the span of five years considered in this report. It nonetheless introduces an over-riding consideration which helps place in context the educational development which must be foreseen, the need for concentration on content in education, and the potentially counterdevelopmental impact of education which fails to give adequate attention to quality, content, and the social structures which will permit effective use of school finishers.

Land, People, and Economy

Kenya, in common with almost all countries included in this survey, is predominantly an agricultural land. Of its 11,900,000 inhabitants at the beginning of 1971, almost 90 percent lived in rural areas. While some of these earned their living partially or wholly from sources other than agriculture, it is estimated that for three quarters of the population agriculture is the sole means of livelihood. Although Kenya is a large country with an area of approximately 225,000 square miles, the northern and northeastern portions of the country are arid and relatively waterless. Consequently, the population is concentrated in the southern two-fifths of the country. Here population density is high relative to agricultural land: a recent estimate by John D. Gerhart (see references) indicates a density of approximately 450 persons per square mile of arable land. All but a small percentage of the highly arable land is already under cultivation. To increase earnings and thereby improve the standard of

living of the vast bulk of the population of Kenya, the Agricultural Education Commission pointed out that "land and water resources must be used more intensively, production must become more efficient, and unit costs must decrease....To improve technology the farmers themselves must be improved through general education and specific training. The first need is to invest in people." A second need, however, is clearly to invest in the types of rural development which promise to generate employment for the persons who have been educated or trained.

The Kenya Government has now recognized in principle that the well-being of the populace will depend largely upon development of the rural areas. Unfortunately, neither income distribution nor other incentives currently attract leadership to the rural areas or retain potential leadership in them. There appears to be a high correlation between the amount of education a person has attained and migration to urban centers. A recent study by Rempel, based upon a sample of over one thousand urban in-migrants, showed the educational distribution of migrants to urban areas revealed in figures presented in Table 1 below.

Table 1. CROSS-TABULATION OF THE EDUCATION OF THE MIGRANTS AND THE EDUCATION OF THEIR FATHERS (PERCENTAGES)

	Migrant's Education				
Education of the Migrant's Father	No Formal Education	Standards 1 - 4	Standards 5 - 8	Forms 1 - 6	Totals
No Formal Education	12.1	13.3	38.4	14.1	77.9
Standards 1 - 4	.3	.9	4.7	6.6	12.5
Standards 5 - 8	.3	.6	3.8	4.3	9.0
Forms 1 - 6			.2	.4	.6
Totals	12.7	14.8	47.1	25.4	100.0

Source: Rempel, Henry. The Rural to Urban Migrant in Kenya, African Urban Notes, Vol. VI, No. 1, Spring, 1971, pp. 63, 65.

Note: Of the men with some secondary education, 84 percent were in school the quarter prior to migration.

It will be noted from Table 1 that approximately 75 percent of the migrants in the sample possessed at least five years of schooling, and over 25 percent possessed some secondary education. Of those who possessed 5 to 8 years of formal schooling, Rempel found that 75 percent appeared to have completed their primary education, while of those with some secondary education, his data revealed that 84 percent were in school the quarter prior to their migration to the urban center. Although percentages of age groups receiving schooling have risen in Kenya, these data obviously reveal that a highly disproportionage percentage of the educated or partially educated move to the city.

Although there are sizable variations in the educational levels of groups migrating to different urban centers, or away from different rural areas, the most important point in terms of the further development of the present Kenyan educational system is that it serves as one unwitting partner in the team of forces which drains the educated from the countryside, thereby depriving rural areas of their most promising potential modernizers. This migration is clearly a phenomenon related in part of job opportunities and incomes and may therefore merely be exacerbated by temporary expedients such as a 1970 tripartite agreement of the Government, the Federation of Kenya Employers, and the Central Organization of Trade Unions whereby Government and the Employers in concerns with ten or more employees increased their staffs by 10 percent for the year while wages and salaries were frozen. It appears clear, furthermore, that most or many migrants would rather remain unemployed in town waiting for a possible job at urban wages than to return to the country where rural wages or underemployment await them. While this is probably chiefly a function of wages, it must also be accounted for in part by the wide disparity between the amenities which are provided in urban and rural areas. If Kenya is seriously concerned with rural development as a strategy for modernization, it will have to give simultaneous attention to reducing income discrepencies, improving amenities in rural areas, and actively seeking out and testing ways in which education might be modified to reduce the leadership drain which these figures suggest. In addition, improved strategies will have to be found for employing educated youth in rural areas for their own and their communities' benefit.

Despite the rather heavy population density per square mile of arable land, other potentialities for significant rural progress do exist in Kenya. The country possesses a good and improving infrastructure of road and rail. Marketing systems are well developed. There have been fundamental changes in the land tenure system in many areas, undertaken on Government initiative, and these have provided the enabling condition for viable farming systems. The deepwater port of Mombasa facilitates the export of products to world markets. Perhaps the major resource which remains only obliquely developed is the human resource, for it is not clear that the type of education provided the rural youngster does much to prepare him either to look upon agriculture as a potentially profitable way of life or to participate on the rural scene as an alert innovator. This is part of the challenge posed to education in Kenya, but it is not yet clear that the formal schools are responding well to this challenge. For this reason a number of non-formal educational institutions have sprung up in Kenya addressed specifically to this problem and designed to serve youth who would otherwise add to the anomic (and politically explosive) potential of growing unemployed urban populations.

Realizing the economic potential of the country becomes both more urgent and more difficult because of the rapid growth of population. Of the nearly 12 million persons who will live in Kenya by the end of 1971, almost one half will be under 15 years of age. Furthermore, population is growing at a rate now estimated (on the basis of the most recent census) to be approximately 3.3 percent per annum. This is an especially high rate of population growth, and the ratio of school age or dependent children to productive workers

which it suggests is staggering. In a country such as Kenya where there is a strong commitment to provide primary education for all primary school age children, the implications of this population growth rate are staggering. The following two tables, as presented in the recent report of the Ndegwe Commission (May, 1971) clearly illustrate the consequence of rapid rates of population increase and concomitant commitments to provide universal primary education as soon as possible. Even allowing for sizable rates of attrition as the tables do, total enrolments at this level rise rapidly. Furthermore, with improved salary schedules for teachers newly accepted and a constant upgrading of the "mix" of qualified:unqualified teachers in the school system, little or no relief can be expected in terms of the per pupil cost of primary education. It is not surprising that the Commission remarked about this probable expenditure as follows, although it proposed no concrete steps which might be taken to deal with it: "In 1964 the estimated annual gross cost of primary education was £8 million against a present-day figure of £13 million. This figure will continue to rise substantially during the period 1970-74, somewhat in excess of the estimated recurrent costs as provided for in the Development Plan." Should there be any setback in the health of the Kenyan economy, this underestimation and the pressure which develops from youngsters already in stream, may pose for Kenya one of the most serious dilemmas it has yet faced in educational development. As there is, however, no firm commitment as to the percentage of primary school finishers who should proceed on to secondary education, the convergence of rising costs, growing school-age populations, and increasing percentages of youth admitted to secondary level institutions may be somewhat less at the level with which we are primarily concerned. Kenya is one of the first countries to have taken seriously the necessity for population control, but there is little chance that efforts at control will have any appreciable effect upon this growth rate in the decade ahead. Effects on school population are likely to come considerably thereafter.

Table 2. PROJECTED POPULATION BY AGE
('000 Population)

Age	1970	1971	1972	1973	1974
7	344	356	369	381	395
8	330	342	354	367	379
9	317	328	340	352	365
10	306	316	327	339	351
11	295	305	315	326	338
12	285	294	304	314	326
13	275	284	293	303	313
Total	2,152	2,225	2,302	2,382	2,467

Source: Statistics Division, Ministry of Finance and Economic Planning. (As presented in the Report of the Commission of Inquiry, 1970-1971.)

Table 3. PERCENTAGE PRIMARY AGE CHILDREN AT SCHOOL ACCORDING TO PROJECTIONS ('000)

Year	1970	1971	1972	1973	1974
Projected No. of children ages 7 to 13	2,152	2,225	2,302	2,382	2,467
Projected No. of children enrolled in primary schools	1,385	1,487	1,593	1,723	1,833
Percentage primary school age children at school	64	67	69	72	74

Perhaps the most promising single omen that the potentialities of the land will be realized is to be found in the clear commitment the national Development Plan to give priority to rural development and to provide a more equitable distribution of national income between rural and urban areas. This new basic strategy is defined in the Plan (which covers most of the period under consideration in this report) as follows:

> The key strategy of this Plan is to direct an increasing share of the total resources available to the nation towards the rural areas. The Government believes that it is only through an accelerated development of the rural areas that balanced economic development can be achieved, that the necessary growth of employment opportunities can be generated and that the people as a whole can participate in the development process.

It is hoped that strategies intended to secure a more equitable distribution of national income between sectors and to right the imbalance between urban and rural incomes, when coupled with other aspects of rural development, will begin the process of eliminating inequities. The full place of education and training in the process of rural development obviously still needs to be worked out, although the commitment in principle to adjust programs to rural environments has been made.

The Strength of the Economy and Potential Economic Constraints on Education

Perhaps the most obvious positive indicator of the strength of the Kenyan economy is the average growth rate which that economy has shown during recent years. As revealed in Table 4 on the next page, the Gross Domestic Product has been growing at an average annual rate of 7.6 percent (factor cost, current prices). This is, of course, more than double the rate of growth in population, thereby leading to a steady and not insignificant growth in Gross Domestic Product per capita.

Table 4. GROSS DOMESTIC PRODUCT AT FACTOR COST, CURRENT PRICES
(K£ Million)

Industry	1964	1965	1966	1967	1968	1969	Average Annual Rate of Growth
Traditional:							
Monetary	21.15	18.45	26.16	27.81	28.81	29.83	7.1
Non-monetary	88.89	80.49	101.53	107.18	108.95	113.59	5.0
Total	110.04	99.94	128.29	134.99	137.76	143.42	5.5
Modern:							
Agriculture	33.55	30.26	32.83	30.49	31.76	34.47	0.6
Non-agriculture	187.35	199.97	223.55	241.09	272.50	298.68	9.8
Total	220.90	230.23	256.38	271.58	304.26	333.15	8.5
Total G.D.P. Modern and Traditional	330.94	330.17	384.17	406.57	442.02	476.57	7.6

Source: Statistical Digest, September 1970, Vol. VIII, No. 3.
Note: The breakdown into "traditional" and "modern" involves the marketed production of small farms which has been subtracted from agriculture in the monetary sector and added to the non-monetary sector.

Although the rate of growth of G.D.P. is healthy in itself and in comparison with the rate of growth of population, the distribution of G.D.P. reflects serious imbalances.

The income of those engaged in rural production is only 1/7 to 1/8 that of those in the modern non-agricultural sector and the relative income has been constantly deteriorating over time. This is a result in part of the increasing cost of living when compared with the decreasing unit prices for agricultural products, but it also reflects insufficient productivity per worker. Perhaps more encouraging is the fact that approximately 50 percent of Kenya's marketed agricultural output now comes from African small holdings, farms which today occupy some 80 percent of the land of highest agricultural potential in Kenya.

Table 5. G.P.D. PER CAPITA WORKER IN AGRICULTURE AND NON-AGRICULTURE

	1964	1965	1966	1967	1968	1969
G.D.P. per capita worker in non-agriculture modern sector	361.9	380.6	406.8	411.9	456.6	482.9
G.D.P. per capita in agriculture and traditional sector	53.8	48.2	55.1	47.1	57.0	57.9
Agriculture as a percentage of modern non-agriculture	14.87	12.66	13.55	13.86	12.48	11.99

Source: Report of the Commission of Inquiry (Ndegwe Commission), 1970-1971, p. 41.
Note: The Kenyan pound is equal to $2.80 U.S.A.

Table 6. AVERAGE WAGE AS A PERCENTAGE OF G.D.P. PER WORKER

Year	Modern Agriculture	Rest Private Sector	Public Sector
1964	16.8	68.6	64.6
1965	17.2	69.1	72.6
1966	16.5	68.7	69.5
1967	15.7	67.6	68.5
1968	14.8	66.2	63.3
1969	14.4	65.2	59.8

Source: Report of the Commission of Inquiry, 1970-1971, Table 17

The annual rate of growth in per capita income (real terms) in the modern non-agricultural sector of the economy is gradually widening the gap between the rural population which is the largest social group in Kenya (80 percent of the population) and the urban dwellers. This differential is only partially mitigated by the flow of income back to the rural areas by reason of family and community loyalties of those with jobs in the cities.

One feature of the economy which tends to be less disquieting in Kenya than in many developing countries is the rather healthy diversity of crops upon which its export earnings depend. Unlike those countries in which almost all export earnings come from one or two tropical crops, Kenya relies upon primary agricultural produce for less than half of its export earnings. Although coffee has been the principal export for Kenya, and is expected to remain the principal export during the period ahead, earnings from this crop have been supplemented by earnings from tea, sisal, and pyrethrum. During the period ahead, the production and export of maize is expected to increase rapidly, the export value of this crop rising according to plan to be second only to that of coffee by 1975. This five crop economy, insofar as export products are concerned, is very healthy by African standards. Furthermore, manufactured products other than processed agricultural products already contribute in excess of 40 percent of Kenyan exports. Significant growth of manufacturing in the form of cement production, oil refining, rubber tire development and chemical production should further diversify and provide balance in the export mix. Not only are heavy development expenditures anticipated to permit expansion of these industries, but the development of the East African Community and the Kenyan market itself should contribute to their growth.

Nonetheless, Kenya's balance of payments does pose one potential limitation upon achievement of goals established in the new Plan and upon the capacity of Government to carry out its plans. Balance of trade can change very rapidly, and the new Plan deliberately allows for conservative estimates as to the future growth in monetary value of Kenyan exports. The balance of payments in terms of goods moved from a surplus to a deficit in the final years of the last decade, and trade is expected to show increasingly a deficit balance. It is hoped that a very large portion of this can be made up in the form of income

secured through services (notably freight), transportation and tourism. The tourism industry, which will almost unquestionably remain one of the fastest growing and most significant industries in Kenya through 1975, already brought in income in excess of K£16 million by 1968 and this figure is expected to more than double by 1974. Even with a highly favourable balance of exports in the form of services, however, a total negative current balance of payments of nearly K£200 million is anticipated during the Plan period. During this time there will also be debt servicing charges which may run as high as K£90 million. This will have to be made up by Government acquisition of capital, both domestic and foreign. The new Development Plan expects external financing will cover approximately half of the anticipated development expenditures. This would, however, amount to only approximately 13 percent of total anticipated government expenditures during the period of the plan.

The capacity of Government to provide the amount of education which it hopes to provide will be dependent not only upon the continued soundness of the economic situation but upon adherence to priorities which have been established in the Plan, of which education continues to be one. In recent years, education has commanded an increasing percentage of the recurrent expenditure of the central government in Kenya; and it is anticipated that an annual growth factor of 10 percent in recurrent expenditures for social services will continue to prevail, a figure which it must be noted will exceed the anticipated rate of growth in Gross Domestic Product.

Table 7. RECURRENT EDUCATIONAL EXPENDITURE IN TOTAL GOVERNMENT RECURRENT EXPENDITURE

K£ '000

	1966/7	1967/8	1968/9	1969/70	1970/71
Total Recurrent Expenditure K£	68,529	74,411	76,513	80,192 (est.)	92,542 (est.)
Education Recurrent Expenditure	7,161	7,870	8,864	10,141 (est.)	20,464 (est.)
Education as Percent of Recurrent Expenditure	10.44	10.6	11.6	12.5	22.1

Sources: Statistical Abstract, 1969,1970; Recurrent Estimates,1971/2

With high priority still accorded education, and the fact that the percentage of the recurrent expenditure granted to education has been allowed to rise at a rate in excess of the rate for total government expenditures, we see no reason to suppose that the recurrent budgets in the years ahead will seriously constrain the expansion of education according to plan. (Unfortunately, it may limit the qualitative improvement of primary education which would come by rapidly upgrading primary school teaching through exclusive or near-exclusive reliance upon primary teacher training following partial or full secondary education. Perhaps more significant in terms of secondary education, however, is the fact that actual development expenditures have not always reached budgeted levels, largely because of delays in construction. We would anticipate, therefore, that some expansion in the aided secondary system may in fact be delayed by development expenditures which fall behind target dates. Unfortunately, this is likely to affect the overall growth of the system less than it will affect the diversification of program and the qualitative improvement which comes with laboratories and workshops.

SECTION I

RECENT AND PROSPECTIVE DEVELOPMENT OF SECONDARY SCHOOLS IN KENYA

The Kenya Development Plan, 1970-1974 provides the most current official basis we possess for estimating the probable growth of maintained and assisted secondary schools in Kenya. The Ministry kept the growth of such schools close to target during the early years of the last plan period (targets for both enrolments and new classes were slightly exceeded), but the years 1969 and 1970 saw both number of classes and enrolments in the aided system move substantially above target. Thus preliminary enrolment figures for the first year of the new Plan period indicated that enrolments in lower secondary classes in aided secondary schools had risen to nearly 72,000 students, a figure nearly 15 percent above the target figure which had been set only two years before. Therefore, although difficulties will undoubtedly exist in keeping building programs on schedule, (especially in some outlying areas) and although the costs of education are certain to continue to rise (especially in light of new salary schedules recently approved), we see every reason to believe that educational expansion will continue to be ahead rather than behind schedule at the lower secondary level during the period under consideration in this report.

Stating that growth in maintained and assisted secondary schools approximated targets set forth for most of the last Plan period, however, is apt to give a mistaken impression of the rate of educational growth which occurred in the period from 1964 on. Probably the most startling growth which took place in secondary education during this period was that in the non-aided Harambee or self-help schools which sprang up in community after community. (See pages 20 - 27 .) When enrolments in such schools are considered part of overall educational development, actual growth of secondary enrolments was more than twice as great as that which targets in the Plan had appeared to anticipate. As Kenya has come to include the Harambee schools in its development plans and to count their students in its national enrolment figures and as part of its program of national development, it is in terms of total secondary development that problems of staffing must now be reckoned. This introduces an even greater element of uncertainty into projections than would be the case were only maintained schools to be considered. The Harambee schools which revealed such phenomenal growth during the past decade reflected on the one hand the enormous social demand for secondary education which existed in Kenya; they reflected on the other the commitment of Kenya and Kenyans to the spirit of harambee and of self-help. Since these schools are close to the political roots of government and since they represent this latter commitment par excellence, it will be difficult to deny them needed support over time or to allow many schools founded by self-help to flounder.

At the same time these schools are proving more expensive for communities to build and support than communities expected and present programs are providing fewer of the sons and daughters of the communities involved with assured entry into the modern sector of the economy than members of communities had at first anticipated. It is therefore to be expected that the overall rate of expansion of the unaided sector will be slower in the period ahead. It remains uncertain how hard it may be to rechannel the spirit and drive which created these schools into providing more diversified curricula in them or to promote other forms of preparation for work and life which would encourage youth to remain in rural communities rather than migrate to the urban enclaves with the allure, higher salaries, and promise of getting ahead of the latter. Even though this will be difficult, however, one factor promises to reduce the rate of overall secondary growth; for much of the anticipated development in the maintained secondary system will in the future come through Government's assuming financial responsibility for classes or streams in Harambee schools, especially where such schools serve otherwise unserved or underserved areas. In this sense, the development of aided and of Harambee schools will tend to merge in the period under consideration in this report.

During the period through 1975, it is planned that development of secondary education in Kenya will take several forms. First, there is certain to be continued expansion of the aided system, although it is to be hoped that this expansion will be at a decelerating rate. Second, it is Government policy to provide greater equity in the distribution of secondary school places, removing existing inequalities in the geographic distribution of schools with their concomitant disquieting ethnic overtones. Third, Kenya is almost certain to move as rapidly as possible in providing for a more diversified curriculum, the national commitment being to introduce a much higher proportion of work in the sciences (in which there is a shortage of persons available for the next higher rungs on the educational ladder) and in practical subjects. The emphasis on practical subjects, fortunately, is not usually to equip persons directly for the world of work but to provide them with exploratory experiences and to prepare them to take post-secondary vocational training as appropriate. Fourth, there is apt to be increased attention and concern devoted to the Harambee schools to ensure quality in terms of staffing and facilities, to reduce or eliminate redundant schools, and to provide increased supervision and probably selective financial support. The recent decision of the Kenyan government to assume direct financial responsibility for primary schools, even while leaving county councils considerable responsibility over some other aspects of primary education, may to some extent serve as a precedent with respect to the Harambee schools; and it is already clear that Government is not impervious to local requests for assumption of support that go beyond planned commitments. Finally, development is almost certain to take the form of greatly increased attention to the upper secondary school, for successful completion of the "sixth form" (or upper secondary school) remains the entry requirement to the new University of Nairobi, and the small numbers of qualified entrants (particularly

into science-related faculties) have severely restricted the size of programs. Likely shifts of emphasis in respect to primary teacher education and other vocational types of secondary education are considered in Section II of this report.

The Recent Development Plan and Actual Performance

The structure of formal academic education which now exists in Kenya represents an adaptation of the British system and is unlikely to change during the plan period. This structure is depicted diagrammatically in Appendix A . In brief, it consists of seven years of primary education followed by a four year lower secondary course. Entry into the regular secondary school has in recent years fallen to below ten percent of those who are enrolled in the final year of primary school. Only a small portion of those completing the lower school find places in higher secondary education. Each step on the ladder is marked by an examination: the Certificate of Primary Education follows primary school; the Kenya Junior Secondary Examination is now offered after Form II of the lower secondary school; the East African Certificate of Education examination follows the completion of Form IV; while the Higher School Certificate Examination (or General Certificate of Education, Advanced Level examination) follows the completion of Form VI. (Secondary schools are classified as either maintained schools, essentially government schools in which all support comes from the government and fees; assisted schools, generally affiliated with religious bodies but securing normally 80 percent of all or some of the teachers' salaries from the government; and unaided schools which may be private, religious or local self-help schools.)

Primary teacher training occurs at three levels, two-year training courses following the Certificate of Primary Education, the Kenya Junior Secondary Examination, and the East African Certificate of Education. Training for secondary teaching regularly follows either the East African Certificate of Education (Form IV) or the Higher School Certificate (Form VI).

The rate of expansion in secondary education over much of the past decade is revealed in Appendix B . Between 1965 and 1967 original plan targets were only slightly exceeded, 136 Form I classes actually being opened as compared with the 128 scheduled in the Plan. From this point on, however, enrolments in aided schools at the lower secondary level appear to have grown much more rapidly than originally planned, however, probably reflecting in large part Government support for new classes in schools which had begun as unaided Harambee schools.

Table 8. GROWTH ACCORDING TO PLAN 1965-1970
(MAINTAINED AND ASSISTED SCHOOLS)

Form	1965	1968	1968 (inc. Unaided e.g. Harambee) Schools	1970 (inc. Unaided e.g. Harambee) Schools	1970 (Plan)	Planned 5 Year Percent Increase
I	11,500	15,169	35,624	41,043	17,600	53
II	8,700	14,388	28,467	37,339	15,800	82
III	6,100	12,405	19,547	24,540	14,300	134
IV	5,400	11,028	14,565	19,317	13,000	141
Total I-IV	31,700	52,990	98,203	74,561 Aided 52,294 Unaided 126,855 Total	60,700	91
V	1,100	1,734	1,769	2,606	2,500	127
VI	700	1,328	1,389	2,010	2,300	228
Total V-VI	1,800	3,062	3,158	4,616	4,800	167
TOTAL	33,500	56,052	101,361	79,177	65,500	96

Sources: Development Plan, 1965/66 to 1969/70; Ministry of Education statistics. Note: Lower Secondary figures do not add, presumably because of later enrolment statistics.

Several conclusions can be drawn from Table 8 above. First, if only assisted and maintained secondary schools are considered, the rate of growth of secondary school education was slightly ahead of schedule by 1968. If, however, the unassisted or Harambee schools are taken into account, enrolments in secondary schools were already some fifty percent beyond the final target figure in the Plan a good two years before the terminal date of that Plan. (Growth in Upper Secondary enrolments was at the same time less spectacular and was actually behind Plan targets for the period.) The period from 1965 to 1970 thus saw plans for annual openings of new Form I classes in aided schools of 57, 41, 50, 30, 35 and 40 classes. That these targets were roughly adhered to in the first years of the period was made possible only by the almost unlimited growth of Harambee schools which helped satisfy the Kenyan thirst for education. (In 1964 the Kenya Education Commission reported that almost one third of the secondary schools in Kenya were self-help or Harambee schools; in 1968 there were 369 such schools compared with 213 maintained and 19 assisted schools; in 1970 there were 483 unaided schools compared with 300 aided schools. It seems clear that the Ministry found it impossible or undesirable to exercise the control over opening such schools which the Commission had recommended.) By comparison with the past rate of development of aided schools, the new Plan called for opening 30 new Form I classes each year from 1971 through 1974, a figure which have significantly reduced the percentage of C.P.E. holders who could enter an aided school and a figure to which it has already proved impossible to restrict expansion.

The Potential Impact of Expansion of Primary Education

The very remarkable growth of all levels of Kenyan education in the period since independence is shown in Appendix B to this report. The rate at which this growth has occurred during the 1960s in primary schools appears as Appendix C . This rate of growth in primary education (enrolments nearly doubled in the period from 1963/64 to 1968/69) has been achieved, surprisingly, with recurrent contributions from the Central Government which were less than those made for secondary, vocational, or higher education. Although primary school funds were formerly handled by County Councils, effective in 1970 the Central Government assumed direct financial control of the primary schools in County Council districts to ensure a more efficient use of the funds than had been made under the former grant system.

It is anticipated that rapid expansion of primary education will continue during the new Plan period. The rationale for this further expansion, which will have important repercussions both in the number of persons it will be necessary to train as primary school teachers and in the social demand which is likely to be generated for post-primary education, is stated in the new Plan (1970-1974) as follows:

> The unprecedented changes now taking place in Kenyan society depend heavily upon the creation of new knowledge, new skills and even greater numbers of literate and educated people. Primary education is a fundamental basis for literacy and the foundation upon which are built the structures of modern educational and training systems. Universal primary education, Government's long-term objective, will continue to possess high priority in the 1970-1974 Plan for education, in order to ensure equal opportunity for all people to play their full part in the development of the country. (Kenya Development Plan, 1970-1974, pp. 452-3.)

In moving toward its ultimate stated goal of universal primary education, the Government hopes to increase the percentage of primary school age children enrolled from the 61 percent enrolled in 1968 to 75 percent by 1974, the end of the period. In order to achieve this goal, the Plan commits government to supporting a 6 percent annual increase in Standard 1 intakes and a total increase in enrolments from 1.2 million in 1968 to 1.8 million by 1974. This increase will, it is hoped, be achieved in part by increasing the number of poor children for whom fees are remitted from between 5 and 10 percent which has existed in the past to between 15 and 20 percent by the end of the Plan period. Furthermore, as large percentages of the children not in school come from poor districts or districts where schools are unavailable, the government plans to provide for increased facilities (including some boarding facilities) in the under-represented areas. In 1965, the Chief Education Officer reported that it was estimated that over 91 percent

of the children in Central Province were in primary school but only 45 percent in Rift Valley and Coast Provinces and only 1 percent in North Eastern Province. Obviously this unequal distribution of primary school places results in a comparably unequal distribution of secondary school students, creating a political problem of sizable importance.

In estimating the number of youngsters who will reach the end of primary school, the Development Plan allows for average survival rates during recent years for Standards 1 through 5, and for considerable repetition in grade for the final two years in primary school. Aside from the more generous remission of fees which is promised, two factors operating in opposite directions may influence the number of children who do reach the primary school leaving examination and are thus potential secondary school entrants. On the one hand, the process of replacing unqualified teachers with qualified teachers will continue during the period, almost all teachers having at least two years of post-primary training by the end of the Plan period. (Between 1965 and 1968 the number of qualified teachers fell from 34 percent to 27 percent. Many of those considered qualified, however, have only primary education with two years of teacher training themselves.) These teachers will be serviced by an increasing number of inservice courses organized around consolidated teachers colleges and by an increasing number of educational supervisors and assistant supervisors. On the other hand, in order to allow the rate of expansion planned, the Plan looks to an increase in the average primary school class size to 40 from its present 32. Improved instructional materials, the increase in fee remissions, and better teachers and supervisors should, if anything, promise less attrition in the early years of primary school.

Table 9. TEACHERS IN SERVICE
BY TYPE OF SCHOOL, 1960-1969

	1964	1965	1966	1967	1968	1969*
Primary Schools						
Trained Teachers	19,179	20,112	23,305	25,050	27,485	29,997
Untrained Teachers	8,649	10,480	10,217	10,622	10,438	8,308
Secondary Schools						
Trained Teachers	1,490	1,866	2,160	2,470	2,743	3,260
Untrained Teachers	510	628	844	1,583	1,902	2,000
Teacher Training Colleges						
Trained Teachers	316	366	400	424	468	515
Trade Schools						
Trained Teachers	n.a.	133	125	94	123	145
Untrained Teachers	-		-	7	7	-
TOTAL	30,144	33,585	37,051	40,250	43,166	44,225

*Provisional
Source: Statistical Abstract, 1969, p. 134. See also Appendix L.

Table 10. PROJECTED ENROLMENT IN KENYA PRIMARY SCHOOL SYSTEM ON ASSUMPTION OF 6 PERCENT ANNUAL INCREASE IN STANDARD I INTAKES, DEVELOPMENT PLAN, 1970-74

Thousands

Standard	1968	1969	1970	1971	1972	1973	1974
I	251	266	282	299	317	336	356
II	208	228	241	256	271	288	305
III	179	200	219	232	246	261	277
IV	159	157	185	203	215	228	242
V	133	138	138	161	177	188	199
VI	135	146	161	161	192	214	226
VII	147	148	159	175	175	208	228
Total	1,212	1,283	1,385	1,487	1,593	1,723	1,833

Source: Kenya Development Plan, 1970-1974, p. 454.

One additional factor promises to continue to weigh heavily in determining the extent of the social demand for secondary school places which grows out of this primary school expansion. Not only have primary school enrolments been growing rapidly in recent years, but it has become customary for children to begin primary school at an earlier age i.e., 5 to 6 years, leading in turn to children of a younger age receiving their C.P.E. Although this pattern varies from one part of the country to another (in such an area as Nyeri where the demand for schooling is unusually high it is estimated over 90 percent of the primary school youngsters are in school), the average primary school leaving age is now 13 years. As there is little place for youngsters of this age in the work force, the demand for further schooling becomes all the greater.

Evidence is increasingly available which suggests that there has been a strong drive on the part of the primary school leavers to go on to secondary school. How much demand may diminish in the near future as it becomes apparent that secondary school does not assure a job, is uncertain. The evidence, most of which came in the mid-1960s, is indicative of the demand which has existed. Three types of evidence, all pointing toward secondary school expansion, should be mentioned.

The first type of evidence, which we secured from secondary sources, was amassed in an attitude study conducted in rural areas prepared for the Ministry of Labour and Social Service in 1965 by Marco Survey Ltd. Although it is difficult to interpret the meaningfulness of the results obtained, all but 7 percent of the respondents suggested that eleven years or more of schooling was necessary for a boy now and 75 percent of the respondents thought at least that much schooling was necessary for a girl. The reasons the rural population gave for their judgments were overwhelmingly economic: job opportunities, financial benefits for students (and to some extent for parents). The study made clear that despite the high cost of schooling, the rural population at that time was strongly in favor of providing more opportunity for further schooling.

A study by John Anderson the following year of the aspirations of primary school leavers themselves in the rural areas of Kenya indicated their own strong preference for school. The order of preference of seven of the major opportunities available is consonant with the demand for more secondary education. In rank order, the preferences were as follows:

1. Government-aided secondary school.
2. Training Courses (e.g., Police and presumably Teaching)
3. Government Trade Schools.
4. Private Secondary Schools.
5. Harambee Secondary Schools.
6. Employment.
7. Work at home on father's farm.

Source: J. E. Anderson, "The Adolescent in the Rural Community," in Sheffield, Education, Employment and Rural Development, p. 418.

It is, of course, often difficult to disentangle completely aspirations from expectations, for the perception of reality no doubt influences what one aspires to. The actual opportunities which are available appear to be limited indeed. This is revealed in a further study by Anderson which suggests in alarming terms the potential impact of mounting numbers of primary school leavers upon an African economy with limited absorptive capacity in its modern and wage-earning sectors. Anderson estimated the occupations of 147,000 1966 primary school leavers the following year to be as shown in Table 11 below.

Table 11. ESTIMATED 1967 OCCUPATIONS OF 1966 PRIMARY SCHOOL LEAVERS

15,000	found places in government aided schools
12,000	found places in Harambee unaided schools
6,000	found places in other unaided schools
15,000	repeated primary classes
4,000	found places in some form of further training (including teacher training)
20,000	found some type of permanent employment
75,000	did not find permanent wage employment or formal education
TOTAL 147,000*	

Source: J. E. Anderson, Education for Self-Reliance--The Impact of Self-Help.

Similar results, apparently based upon a study by the Christian Council of Kenya and the Christian Churches Education Association give a somewhat more detailed estimate for the preceding year and are included as Appendix F to this report.

Partly as a consequence of the youthfulness of primary school leavers, considerable political pressure appears to have been put upon the Ministry to increase to nine years the duration of common

* The Economic Survey, 1970, estimates that between 1967 and 1969 wage employment rose just under 46,000 whereas new entrants to the labor force (most school leavers) rose 220,000.

education, that is, the years of schooling which it is hoped to make universal. This could be accomplished either by making the first two years of secondary school common to all or by engaging in a structural reorganization of the system whereby the first nine years of schooling became common elementary education. It is beyond the strict terms of reference of this report to assess either proposal; for either change would involve important financial and political considerations, especially in a period when the present seven years of education have not yet become available to all children. It would appear unlikely that such a changeover can be achieved rapidly in any event. If it is in this direction which Kenya does decide to move, however, two professional considerations should bulk large in the decision as to the content of the program and the pacing of the changeover: (1) It would be unfortunate if the change were made merely by incorporating the present content of the first two forms of secondary school into an expanded elementary school. It would be important that curriculum be carefully reexamined and planned, for not only might important parts of the present content of Forms III and IV be found to be appropriate items for this common education but entirely new content, currently not incorporated in the curriculum, should be expected to replace some content whose chief claim to inclusion may be more that of tradition than that of appropriateness. (2) Plans for the staffing of any such revised program should be made considerably in advance of any changeover, for it is not clear that either present primary school teachers or present secondary school teachers would be optimally equipped to handle the final years of the common school. Both revisions of pre-service training programs and expansion (on a "crash" basis) of in-service training programs should both precede and accompany any actual changeover in program. Furthermore, careful monitoring and on-going evaluation of changes should be included in any educational transformation of this magnitude.

Whether or not such a new option is accepted, it is difficult to imagine where places in the wage economy will be found for many of the youngsters who will be leaving the elementary school in the decade ahead. Furthermore, we still know too little about ways of helping school leavers enter into modest or small scale self-employment, although it is doubtful if the knowledge we do have available is fully reflected in school or youth programs. Thus the opportunity for such youngsters to go on to secondary level education becomes a matter of constant concern. The Index of Opportunity for Secondary Schools (Form I enrolments in aided secondary schools as a percentage of Kenya Preliminary Examination entries the preceding year) has declined from 14.4 percent (in government aided Form Is) in 1964 (20.0 percent if Harambee schools are taken into account) to approximately 9.3 percent in aided schools in 1967, and it is planned that this ratio be maintained during the first half of the 1970s. With a labor market in the wage economy whose growth rate does not approach the rate of growth in the output of the primary schools, it would appear that social demand for education may continue to cause political pressure for places in aided secondary schools in excess of those counted upon within the plan.

With expenditures on secondary education growing at a rate of 8.2 percent per annum, a rate not greatly in excess of the anticipated rate of growth of Gross Domestic Product, and with the first constraint on salary costs having taken effect with a one-year wage freeze, there remains the possibility or even the likelihood that enrolments will continue to push well ahead of target either in the aided school system or in the Harambee schools, the former now appearing the more likely. In order to judge how likely this is to occur, however, we must give attention both to the Harambee schools and to the few other educational opportunities which exist for primary school leavers and which could conceivably serve as outlets for the drive for more education or training.

The Development of Harambee Schools

Unquestionably one of the most intriguing features of Kenyan secondary education has been the growth of self-help Harambee secondary schools. The pace of development of these schools has been far more rapid than that of the aided secondary schools. In its report prepared in 1964 the Kenya Education Commission noted:

> The spirit of self-help is a valuable part of our national inheritance and everything must be done to stimulate and sustain it. We fear, however, that it will soon be quenched, if it is misdirected towards tasks that are beyond the powers and resources of the local community to fulfill...we were very much disturbed by the probability that many of the children in these schools would not in fact receive an education that would justify the description of secondary....Even measured by the standard of the Cambridge School Certificate, it was, in our judgment, virtually certain that most Harambee schools, in their present condition, would produce disastrously poor results; while others were in grave danger of failing altogether from lack of funds, or teachers, or both. (Kenya Education Commission Report, Part II, p. 21)

At the time the commission was sitting, it estimated that one third of the secondary schools were Harambee schools. Although this was at a time when the growth of these schools was especially stimulated by (1) the elimination of Standard 8 in primary schools, which made school rooms available, and (2) a declining index of opportunity for holders of primary school certificates to find places in aided secondary schools, it has proven the case that growth has continued to be rapid. In many parts of the country, Harambee schools grew from long-standing traditions of self-help which now, for the first time, were directed into establishing secondary schools.

In his 1968 study of these schools, John Anderson reported the accelerating growth of such schools in the following table, to which Ministry figures for the years 1968-1970 have been added here.

Table 12. THE DEVELOPMENT OF SECONDARY SCHOOLS FOR AFRICAN STUDENTS IN KENYA, 1945-1968*

Year	Aided	Unaided	Total
1945	4	0	4
1957	21	4	25
1960	33	8	41
1963	82 (36)*	13 (19)*	95
1964	152	68	220
1965	184	150	334
1966	197	201	398
1967	206	361**	567
1968	232	369***	601
1969	263	431	694
1970	300	483	783

*At independence the distinction between African, Asian and European schools was dropped. Thus, figures from 1964 onwards include European and Asian schools. These are shown in brackets for 1963.

**This represented a Ministry estimate and included schools which had not submitted returns.

***The actual number may well be larger, some schools being unregistered. The best available estimate suggested that up to 30 additional Harambee schools had been opened in 1969. Not all unaided schools are Harambee schools, of course. Anderson, disaggregating the figures for 1967, came up with the following figures:

247 Harambee schools
38 Private secondary schools
45 "Hidden" private schools, i.e., commercial or tutorial colleges, offering normal secondary education
31 Religious secondary schools, chiefly Catholic seminaries or fundamentalist mission schools.

Source: J.E. Anderson, Education for Self-Reliance--the Impact of Self-Help; Ministry of Education statistics.

The Kenya Ministry of Education has gradually exercised more control over the opening of unaided schools. Part IV of the Education Act of 1968 requires that all unaided schools apply for registration by the Ministry, such registration being granted only when the accomodations are judged adequate, the manager is considered suitable, and "the establishment of the school is consistent with the needs of Kenya and the economical and efficient provision of public education." The Ministry has the power to inspect these schools and ample provisions exist for closing schools which fail to remedy shortcomings. Major concerns of the Ministry during the period rapid expansion have been to see that the schools serve reasonably large catchment areas and that no redundant schools are established. The finances of most schools have been shaky and the form and quality of governing

the schools has varied widely from one locality to another. Only gradually have inexperienced committees learned to deal with the financial complexities of building and operating schools simultaneously. Schools are originally built with donations from community citizens, occasionally assisted by local councils, and sometimes by cooperatives. Further donations provide continued support for the schools, but most revenue is derived from fees which average between 600 shillings and 700 shillings a year. As most Harambee schools are located in rural areas, the payment of fees tends to be irregular, depending upon crops. Fees are almost always a considerable drain on family funds, for school fees are regularly the largest call upon cash of the Kenyan farm family. Many times fees are paid by relatives holding wage or salaried employment in the urban centers, however, and in this sense the schools stimulate a useful flow of cash back from the city to the countryside.

These schools obviously lack many of the features which make for good education. They quite regularly lack laboratories, libraries, and well qualified teachers. Textbooks are ordinarily the cheapest editions and frequently are not available for all students. Very few of the schools are boarding schools, although some do provide some accommodation for students. (A number of schools provide boarding facilities for girls.) In many cases, students join together in shops or houses where they live as a group and provide their own food. Although most persons concerned with the schools (boards of governors, students, parents) recognize the role that the schools should play in rural development, they still see the school primarily as an avenue into modernity and as a means of providing wage earning employment. The model at which the schools aim appears to be that of the conventional government-aided school, with its curriculum and facilities; but lack of teachers, money and facilities have given these schools an even stronger bias towards the arts subjects than is the case in the aided schools. Although science subjects will doubtless be added as teachers and central government support become available, the curricula in 38 Harambee schools as reported at a 1966 Conference of Harambee School Headmasters probably reflects the offerings of all except the richest of the schools until such time as the government assumes responsibility for supporting part of the program. In many schools extracurricular activities are offered, in a few instances including 4-K clubs, the school farm clubs in Kenya. (See Table 13.)

Although the process of maintaining control over Harambee schools has in the past been loose (partly because Kenya went through a period of transferring regulation from Regions to the central Ministry), more control appears promised in the future. This will likely lead to improvement in financing and staffing, even where direct government financial support is not involved. Control appears to have been exercised hitherto at three points: first, at the time permission is required in order to open a school, such permission depending as indicated earlier upon the availability of existing schools to serve the local area. Second, further permission must be secured to develop the school beyond the Kenya Junior

Table 13. CURRICULAR OFFERINGS IN HARAMBEE SCHOOLS, 1966

Subject Distribution in the Curriculum

Distribution of subjects for 38 schools who retained copies of time tables.

Non-Science Subjects

	Schools Offering	Average Periods Per Week
English	38	9-10
Mathematics	38	7-8
Geography	38	3-4
History	38	3-4
Physical Education	38	2
Religious Knowledge	36	3
Swahili	27	3
Music	26	1-2
Current Affairs	14	1
Art	9	1-2
Library	4	1
(One school offered Domestic Science for girls and one offered needlework.)		

Science Subjects

Physics, Chemistry, Biology	9	6
General Science, Biology	9	6
Biology	6	4
Health Science	3	3-4
Biology, Health Science	2	6
General Science	1	6
Health Science	1	6

Source: Report on the Conference of Harambee School Headmasters, August 10th-14th, 1966, University College Nairobi (mimeo.).

Secondary Examination level, a plan for phased upward extension having been worked out and a large number (149) of the unaided schools having already offered work at Form III level by 1968. Finally, any school must be approved to offer school candidates as a school for the school certificate examiniation, and this regularly involves consideration of its academic potentials.

Outside critics have frequently pointed to the Harambee schools as a near disaster, but actual accomplishments at least partially belie this charge at the Junior Secondary School level where they were able to secure some teachers capable of handling the work. Results on the Kenya Junior Secondary School Examination as of 1967, for example, revealed a low overall school pass record (28%) but median scores in all subjects except biology were over 50%, the overall school record being partly a result of the required subject combinations for the examination.

Table 14. HARAMBEE SCHOOL CANDIDATE RESULTS IN THE KENYA JUNIOR SECONDARY SCHOOL EXAMINATION, 1967

The median scores for the subject were:	Passes
English 98 schools entered	55%
Swahili 86 schools entered	53%
Maths 93 schools entered	60%
General Science 60 schools entered	62%
Biology 82 schools entered	33%
Geography 92 schools entered	52%
History 92 schools entered	56%

Source: John E. Anderson. Education for Self-Reliance: The Impact of Self-Help. Institute for Development Studies, University College, Nairobi, 1968. pp. 23-28

The overall national percentage pass rate for 1969 was 30.6 percent which varied by Province as follows: Central 30.2 percent; Coast 30.2 percent; Eastern 39.8 percent; Nairobi 14.4 percent; Nyanza 27.2 percent; Northeastern 37.5 percent; Rift Valley 31.3 percent; and Western 35.2 percent.

The first Harambee schools to offer candidates for the school certificate examination in 1967 had a 51% pass rate, compared with a 73% pass rate for the aided schools that year. This suggests a long way to go, but it does not indicate complete lack of success. Assessing the academic results in general, Anderson concludes that these "seem to confirm that schools are able to produce quite satisfactory results in the basic skill subjects: mathematics, English, and Swahili. That they are still unable to move into highly diversified curricula including fields such as business education, industrial arts, and agriculture reflects shortage of finances, lack of facilities, lack of staff, and problems of planning and administration connected with this new institution."

There seems little doubt that there will be continued growth in these schools, linked as they are with both the Kenyan thirst for education and the national commitment to self-help. Much yet remains to be done, however, to improve them and develop their curricula along appropriate lines. It is not clear that they should in all cases merely follow the curricula offered in every maintained secondary school, nor is it clear that all Harambee schools should continue beyond Form II. Some might more appropriately provide education which is terminal at this level, while openings should be provided in maintained schools to accommodate students from these schools who show special potential for profiting from further academic education. Kenya appears to look in part to Harambee schools to raise the general educational level of the populace, and it is most unlikely that purely manpower or employment considerations will dictate their rate of growth.

Actual enrolment in unaided schools exceeded 50,000 students by 1970, but future enrolment is uncertain. Although few of the

schools failed in the period through 1969, some future failures or closures appear likely. Classes generally run in the neighborhood of 40 students each, but enrolments in Harambee classes are likely to vary much more widely during the year than is the case in the assisted and maintained schools, despite the fact that great consideration is given to local students who are tardy in paying their fees. Most Harambee schools tend to be one-stream schools, although it is Government policy that eventually all aided schools will be of at least three-stream size. (255 of 362 unaided schools were one-stream schools in 1968.)

The relation of the Harambee school movement to the growth of the aided system is many-faceted. Had it not been for the Harambee schools, the pressure on the government system during recent years would have been greatly increased--almost unquestionably leading to much more rapid growth of that system, growth which would have both taxed the government resources heavily and which would have led to deterioration in the quality of the education offered in maintained schools. Kenya has consistently given attention to the percentage of those achieving the Certificate of Primary Education who are able to go on to secondary school, the Ministry noting with concern when this percentage has declined considerably. The rapid growth in primary enrolments as Independence was approached and then achieved necessarily meant a sharply declining index of opportunity especially insofar as the chance to secure a place in the aided schools was concerned. (Prior to independence the more restricted development of primary education meant that over 40 percent of those who reached the final standard in primary school went on to secondary. With rapid expansion of primary education, this figure has now fallen to below 10 percent.) Harambee schools stepped in to fill this gap. (See Table 11 on page 18.)

Second, Harambee schools have served as the means of expanding the aided school system itself. Pressure is almost invariably put upon the central government to take over the financing of the Harambee school the year following its establishment. Such pressure has usually been resisted in the past, but Government has assumed responsibility for financing specific classes in Harambee schools, largely in districts which were not served by local aided schools. When a previously unaided school is given aid, it is only given aid for Form I in the first year, Forms I and II in the second year, and so on. Thus aided classes may not be fully "phased in "as a school for up to three years after the time when the school is first provided aid. In this manner, 26 schools were provided initial aid at one class level in 1967-68, 26 schools in 1968-69, and 28 in 1969-70. The new Development Plan proposes to open 30 new Form I classes each year from 1971 through 1974, "most of which will open at existing Harambee secondary schools." Thus the Harambee schools become, in a very direct sense, the growing edge of the aided system in Kenya. As support secured from the Central Government in the past has been restricted to larger secondary schools, three stream schools being the minimum accepted for I.D.A. loan purposes, this policy of spreading government assistance to Harambee schools on a phased "one class" basis has been the chief means whereby the government has pursued its policy of providing greater equality of opportunity by geographic region or, implicitly, by ethnic group. In addition to this planned takeover of streams in Harambee schools, Government

has in some instances yielded to particular political pressures and provided the salaries of individual teachers for specific Harambee schools or, more frequently, provided assistance to these schools through assigning volunteer teachers from abroad. The present status of staffing these schools and the potentialities for improving that status are considered in the next section of this report.

A major recommendation of the Kenya Education Commission was that Harambee schools be included in the Educational and Development plans of the nation. (The 1965-1969 Development Plan limited itself to concern with the aided schools.) This recommendation is put into effect in the new plan, which looks not only to a more restrained rate of growth but to consolidation of many of the "scattered and numerous Harambee Secondary Schools occuring close together." Noting that enrolments in the Harambee schools nearly equaled those in the aided schools by 1968, the Plan anticipates a far slower rate of growth in the period ahead, a rate of growth which will actually be slower than that planned for the aided system. Its reasoning and the projection ensuing from this deserve consideration:

> A number of factors militate against a continued rapid expansion in Harambee school enrolments during the Plan period, 1969-1974. They are: (i) Many areas now have a sufficient number of this type of school facility. (ii) A number of communities have been discouraged from opening more Harambee schools because of the expenses involved.
> (iii) With the high rates of output of secondary school students, employment opportunities for the average school leaver have declined sharply. In short, the economic motivation for acquiring a secondary education has diminished.
>
> Given these factors, it is expected that the net increase in Harambee school enrolments will be relatively small, increasing from nearly 45,000 to about 50,000 over the Plan period. (Kenya Development Plan, 1970-1974, pp. 459-460.)

It is difficult to assess how accurate this projection may be, for despite reference to the Harambee schools in the Plan and the objective of absorbing those schools which serve hitherto unserved areas of the country into the aided system, political considerations continue to loom large in the exercise of control over the opening of Harambee schools. Although all schools must be registered and all managers must be authorized to open unaided schools, the Ministry has found it virtually impossible to say "no" if regulations relating to such matters as class size and buildings are not met. The probable continued public demand that new schools or new classes be opened when coupled with the desire to carry classes already begun at Form I on through Form IV--1968 statistics revealed 249 schools offering only Form I or Forms I and II at that time, most of these being Harambee schools may more than offset the number of classes which will become part of the aided system through the assumption by

Government of responsibility for financing streams or classes in hitherto unserved or underserved geographic areas. How much the declining opportunities for salaried employment for secondary school certificate holders will influence local decisions is more difficult to say. In general, however, the drive for secondary education continues well beyond the point of an assured job--it continues as long as there is even a reasonable chance that the certificate will provide the key to a job in the modern sector of the economy.

The estimates which conclude this report, consequently, suggest the possibility of continued growth of total enrolments in Harambee schools, probably somewhat in excess of that looked forward to in the Development Plan. Bergman, in a recent estimate of teachers needs (see Bibliography on page126) suggested that roughly constant enrolments might be expected after 1968. This appears somewhat too conservative a judgment. While it is true that Harambee schools do place a heavy financial burden on parents and communities (it is estimated that by 1968 over K£2 million had been spent locally on building and operating these schools), there is even less place for the primary school leaver in the modern sector of the economy than there is for the secondary school leaver. Moreover, the educational alternatives which are being urged by the central government (such as the village polytechnics which are described briefly on pp. 28-29) do not have the prestige provided by the formal education system which has for decades rewarded its products quite handsomely. As Kenya continues to include factors other than manpower considerations or the employment market in the wage economy to play a large role in its decisions concerning educational development, it appears likely that Harambee schools will both continue to grow and continue to receive support. Our own estimate is, consequently, that the unaided system (which consists chiefly but not entirely of Harambee schools) will continue to see modest growth during the period between 1970 and 1975, unaided classes in Harambee schools enrolling between 50,000 and 60,000 pupils during this period.* We admit this estimate is crude, but at present there appears no accurate way of predicting enrolments in Harambee schools and it seems appropriate that communities and these schools should continue to assist Government in the task of providing secondary education.

Other Educational Options Open to Primary School Leavers

Elsewhere in this report we discuss the probable expansion of both teachers colleges and various types of formal vocational institutions at the immediate post-primary level. As teaching ranks high in the vocational aspirations of primary school leavers in Kenya (primary school leavers ranked it second only to cash crop farming in both urban and rural areas in a study reported by David Koff in 1966), teachers colleges provide an important "safety valve" for pressure

*In 1970 the enrolment (provisional figure) was 52,294. (Provisional Statistics File, Ministry of Education, 1970, Table 18(d). The enrolment for the preceding year had stood at 49,602. (Ministry of Education Annual Report, 1969, p. 5).

to expand secondary schools per se. These colleges will continue training programs for both primary school leavers and those who have passed their Kenya Junior Secondary Examination for some years, and thus this safety valve will continue to exist. But even though teaching is one of the largest categories of wage-earning employment in the country, the primary teachers colleges enrolled less than 6,000 pupils in 1968 in comparison with more than 100,000 who were enrolled in aided and unaided secondary schools. Similarly, technical and vocational secondary schools enrolled less than 9,000 students the same year. This in part reflects the conviction that most vocational education should occur at the post-secondary level and that much vocational training is offered on either a sandwich or evening course basis or to those who already are employed by government or a firm.

There are, however, several other educational opportunities which should be mentioned, lying as they do outside the formal education system. Unfortunately, it is not likely that these institutions will have the appeal of the formal secondary schools; for as a senior official in the Ministry of Education commented, in respect to the relative priority Kenyans place on practical or on academic education, "Kenyans have been badly brought up." This is, of course, in the last analysis more a reflection upon the reward system which has long operated in the society than upon the explicit guidance of schoolmen. Three types of non-conventional educational institutions appear worthy of very brief mention, however, because of their potential for relieving demand for expanded conventional education.

1. Youth Centres. Kenya possesses an extensive system of community youth centres providing both in-school and out-of-school education for youth who range between 7 and 20 years of age. In 1967 over 10,000 youngsters were enrolled in the centres, pursuing programs from one to four years in duration. By 1969 it was estimated that this figure had grown to 13,000, approximately 170 centres serving these youth. Although some academic courses are offered, the centres provide chiefly vocational training. Fees are minimal (in 1967 they averaged about 20 shillings per annum for boys and 10 shillings per annum for girls). The centres are at various levels, the Senior Youth Centres being designed especially for those who have completed either primary school or a Junior Centre program. (Some centres provide specialized vocational training in one or another occupation.) The centres cater to those who have been unable to pay school fees or who have dropped out of school for one or another reason. Although they tend to be well-integrated in the local community, they generally lack the quality of teaching staff, the resources, the administration, or the prestige which would make them in any sense competitors with the secondary schools. Operating under the Ministry of Cooperatives and Social Services with teachers trained since 1963 at the Kenya Institute of Administration, the centres form a valuable supplement to the formal education system. This supplement can be easily related to the rural community and the world of work, but it is unfortunately not a supplement which is apt to do much to quench the desire for academic secondary education.

2. Village Polytechnics. The new Development Plan speaks optimistically of directing much of the spirit of self-help which

has formerly gone into the development of Harambee secondary schools into the village polytechnics, institutions which have developed since 1966 and which are presumably more closely related to development needs in the rural communities. The polytechnic idea grew out of a study of the needs of youth conducted by the National Christian Council of Kenya. The movement has grown since that time until it was estimated that by 1970 there were 20 polytechnics in Kenya, and recently an inter-Ministerial committee has been set up to coordinate development of these institutions. An evaluation report of the village polytechnics prepared by John Anderson describes their purposes and program as follows:

> The aim of the polytechnic movement is education for self employment. This means providing young people with skills, understanding and values which will lead them, even when permanent wage earning roles cannot be found for them, to look for other worthwhile occupations in the rural areas...
>
> Inevitably the early efforts of the polytechnics focussed on skill training, and skill training as such is still the major activity of the polytechnics to the extent that in certain polytechnic catchment areas the overproduction of common skills, carpentry, leather, etc., is a clear danger. However, the experiences they have gained in running polytechnics have alerted most of the polytechnic organisers and staff to the situation.As a result polytechnics are now experimenting both to find new occupations in rural life and to help their students take advantage of them. One key factor already brought to light by polytechnics is the multiple nature of occupational role in rural Kenya where men are likely to be farmers and traders as well as contracting artisans, if they have the skills.
>
> Thus, in nearly every case polytechnics are developing courses which add elements of commercial training and agriculture to basic skill training. Besides this, in some cases, interesting schemes (exist) which aim to provide help for young people with occupations they find for themselves at their own homes. Such schemes are interesting and show the type of potential which imaginative and flexibly developed rural educational institutions can have. (Anderson, John. The Village Polytechnics.)

Although the polytechnics still vary considerably in program, the more formal ones offer a two-year course which is illustrated in Appendix J to this report. Average recurrent costs at the polytechnics appear to run between 15,000 shillings and 20,000 shillings per annum with the cost per student of roughly 500 shillings. This would compare with average costs of between 900 shillings and 1000 shillings in Forms I to IV of a rural secondary school. Although in large part the staff of these schools will be drawn from a different pool than that of formal secondary schools, they have attracted members of volunteer services and thus affect the supply of teachers directly as well as through providing a potential release for the demand for secondary school education.

3. The National Youth Service. Organized in 1964, the Kenya National Youth Service serves young persons between the ages of 16 and 30. As described in the most recent Plan, the objectives of the service are:

> to place young people in an environment which will inculcate good citizenship and provide an opportunity for education and training which will make of them productive, skilled workers or farmers. Through such a programme they can contribute directly to the economy of the country by helping to conserve, rehabilitate and develop the country's natural resources while they are in the service and they can enhance their opportunities for continued productive employment, primarily in the rural economy, after they leave the service.

The Service provides not only minor vocational training in a variety of trades but regular educational classes, especially but not exclusively in English, Mathematics, and Civics. Since it was founded, more than 11,000 young men and 600 young women have gone through the service. Although the service originally catered to those in their mid-20's, since 1967 increasing concern over the primary school leaver problem has led to younger intakes and the service thus provides a potential release for some demand for formal schooling. The Service maintains a Vocational Training Unit at Mombasa which has been staffed by the World Organization for Rehabilitation and Training Union, and a counterpart program should provide Kenyan instructors to take over by the end of this year. It is expected that some thousand young men will be trained to trade test standard over the 1969-1974 plan period. Recruits to the Service are drawn from all parliamentary constituencies in Kenya, but the recurrent annual cost has been high (approx. K£150 per member) and the program is not intended to grow much in size. As with the village polytechnics, some expatriate volunteers have served with the National Youth Service, which has also been supported in part by financial aid from overseas. While the Service unquestionably provides a very modest release for the pressures developing from youth who cannot find employment, it is not the type of organization which attracts potential students away from the formal secondary institutions.

In addition to these three services, other educational organizations or institutions can help serve the educational aspirations of young Kenyans. 4-K clubs organized by the Ministry of Agriculture serve rural youth both in and out of school, and in 1968 it was estimated these clubs had a membership of some 26,000 youngsters between the ages of 8 and 20. The usual opportunities in the form of correspondence courses in academic and vocational subjects also exist, of course; and as is true in other British-related countries, these courses (and the correspondence colleges which prepare students for examinations in a variety of both academic and business certificate subjects) provide one means of continuing education for youngsters who do not find school places.

The Potential Impact of Efforts to Equalize Opportunity for Secondary Education by Geographic Region

During the forthcoming plan period, Kenya will necessarily

continue to be concerned about the geographic distribution of educational opportunities in order to provide greater equality of opportunity. The distribution of schools was most uneven during the colonial period, almost half the secondary schools in Kenya being located in Nairobi at the point of Independence. Schools elsewhere were generally sited either in administrative headquarters or in mission centers. Even a town the size of Malindi lacked a secondary school, as it fell in neither of these categories.

The new Development Plan notes that "Government is less concerned with small changes in the national ratio of Form I places to Standard VII enrolments than it is in the wide inter-provincial variation in this ratio which indicates a far from equitable geographic distribution of opportunities for secondary education." An indication of how grossly inequitable educational opportunity has been is revealed in Table 15 which indicates, in addition to recent census figures by province, the primary school enrolment for 1967 and the opportunity index for secondary education for 1968, that is, the percentage of primary school completers who could secure a place in a secondary school within the province.

Table 15. REGIONAL VARIATIONS IN PROVISION OF EDUCATION, 1967-1968

Province	Pop. 1969	Total Primary School Enrolment 1967	Opportunity Index For Secondary Education 1968
Central	1,676,000	273,558	7.1
Coast	944,000	65,719	18.6
Eastern	1,907,000	226,687	6.7
Nyanza	2,122,000	196,821	6.6
Western	1,328,000	150,270	9.1
Rift Valley	2,210,000	165,325	8.9
NorthEastern	246,000	1,822	35.0
Nairobi	509,000	52,977	36.9

Sources: Statistical Abstract, 1970. (Population). Statistical Abstract, 1969. (School Statistics)

Attempts to provide more even distribution of educational opportunity will necessarily involve construction of new facilities and opening new classes in certain provinces.

The policy of providing equality of educational opportunity by geographic region is to be carried out in a number of ways. In

areas which are not served by schools, local communities have been encouraged to start Harambee schools with the promise that these schools will be taken over (insofar as financial support for maintenance and teachers is concerned) by a specified date.* Where local initiative has already led to establishing an Harambee school in an area which is considered an educationally deprived area, support is likewise promised for a fixed date. Frequently the support is provided for only one class in the school, beginning with supporting a single class in Form I and then adding support for an additional year as that class proceeds. Moreover, where there is an inadequate number of places in school for youngsters from some areas, special provision is made to accommodate these youngsters in schools elsewhere. As a general policy, the Ministry is guided by a cabinet directive to the effect that no district is to have less students admitted in secondary school than it had the preceding year. The combination of these policies is certain to lead to steadily rising enrolments in secondary school, although the percentage of youngsters of secondary school age who are actually in school continues necessarily to remain small.

As there are wide divergences in opportunity within the various provinces, planned expansion will necessarily take into account intra-provincial distortions as well as interprovincial distortions. Presumably the political need for distribution and such factors as the receptivity or eagerness of certain areas or ethnic groups to secure education are taken into account in projections made for the Plan period; and we know of no way to make additional allowance for them other than to note that the urgency of providing greater equality undoubtedly will provide justification for Ministry of Education budget requests during the period ahead. This, more than the usual economic justification based upon manpower needs, seems likely to ensure continued cabinet support for much of the expansion planned at the lower secondary school level.

Constraints Likely to Affect Expansion of Secondary Schools

The factors suggesting that secondary schools in Kenya will continue to expand on or above target have already been indicated. The record which the Ministry of Education has made in staying on or exceeding target enrolments during the past Plan period, the undeniable hunger of Kenyans for more secondary education, commitments already made by the Government to some secondary schools, the public or political pressure which will arise for Government to take over or give added support to further Harambee schools, the decline in the average age of the primary school leaver to below the level required for entering the employment market, and the still limited number of employment opportunities or educational options open to those with only a primary school education all suggest that there will be continued rapid growth in secondary school enrolments. The political necessity to provide more nearly equal educational opportunity by region will support these forces.

Only two factors, in our judgement, may operate over time to hold growth near the targets contained in the Plan. The first of

*This policy is reflected in the fact that 454 of 694 secondary schools were single stream in 1969. 315 of these were unaided (mainly Harambee) schools. Economic Survey, 1970, p. 172

these is that the secondary school leaver, much as the primary school leaver, is finding it difficult to secure employment. A recent study of secondary school teachers (conducted by a team from the American Association of Colleges of Teacher Education) referred to a 300 percent overproduction of lower secondary school leavers, estimating such overproduction in terms of salaried employment available. Whether output is in fact this much above the number of jobs which those with realistic aspirations might consider suitable is open to question, but it is now clear that money spent on school fees can no longer be regarded by Kenyan parents as a guarantee of a future job but must rather now be looked upon either as providing something of value in itself or as a speculation on the possibility of securing a job or the higher education which would lead to a job. By and large, we would judge, people will continue to be willing to take the implied risk, for the alternative is even less attractive. Nonetheless we cannot help but feel that there remains the possibility that public demand for school places may decline with the declining job market before 1975.

The second constraint may begin to prove decisive as public demand for secondary education loses some of its urgency. This is the financial constraint. The Chief Education Officer of the Ministry of Education reported to the Kericho Conference in 1966 that the recurrent cost of a place in school "averages out at roughly K£8 (per annum) in primary education, K£60 for a day secondary place and K£100 for a boarding secondary place, K£140 for a training college place and K£1,130 for a University College place."* Although Kenya hopes to reduce such costs by greater emphasis upon day schools and by increased class sizes, gains made by such means will be offset in part by the somewhat alarming rate of inflation which exists, the upward pull of incremental salary structures, new and (for teachers) improved scales, and the continual process of upgrading the qualifications of staff (particularly at the primary school level.) During the last Plan period, recurrent costs for education in Kenya rose far more rapidly than the overall Government guideline of 7 percent per annum for recurrent expenditure; and while new Plan targets suggested a somewhat slower rate of expansion in the future, it may prove difficult to continue to devote to education the same share of central government recurrent expenditure which has been devoted to it in the past and is still being devoted to it, especially if pressure is exerted more directly upon Government to participate actively in ensuring or providing employment of unemployed youth or workers. (The recent tripartite agreement to increase wage employment by 10 percent for a year reflects the fact that Government feels constrained to demonstrate great concern about employment.) Thus even the genuinely healthy growth rate of the Kenyan economy (especially if this growth rate is measured chiefly in terms of Gross Domestic Product or Gross Domestic Product per capita) and the high priority which Government has accorded to education in the recent past do not ensure that the recent rate of increase in secondary school places financed largely by Government may not be curtailed somewhat prior to 1975. During the next five years, development expenditures will be considerably assisted by an I.D.A. project which is expected to relieve Kenya of part of the burden involved in providing a more diversified program. The

* See also Appendix M

first phase of the I.D.A. loan, however, tied diversification of school programs to a commitment to develop three stream schools, the latter development virtually ensuring that much Kenyan secondary education would necessarily take place in boarding schools with the expense these entail. Thus even as capital costs were made easier to bear for the moment, impetus was given to the rise in recurrent costs. Over the new Plan period, Kenya expects to devote an additional K£8 million to secondary facilities, of which K£6 million will be financed from local resources. This local cost will be a heavy burden for the budget to bear, while even low cost external loans frequently lead to subsequent debt servicing problems of a staggering size.

It is, however, recurrent expenditures which promise to prove the more difficult problem. The Plan, even though it allows for a slower rate of expansion than has existed in the recent past, envisages an average compound annual rate of increase in excess of 8 percent (51 percent for the period from 1968 to 1974 overall).

Table 16. PROJECTED RECURRENT EXPENDITURE FOR EDUCATION

K£'000

	1969/70	1970/71	1971/72	1972/73	1973/74
Primary Education	10,884	11,972	13,082	14,302	15,882
Secondary Education	4,359	4,778	5,183	5,587	5,980
Secondary Technical Education	160	174	197	217	237
Primary Teacher Training Colleges	589	665	695	810	830
Secondary Vocational Education	231	284	314	370	373
Secondary Teacher Training Colleges	562	592	587	584	602
Kenya Polytechnic	215	236	254	270	290
University of Kenya	2,267	2,535	2,710	2,884	3,007
Kenya Institute of Education	25	40	60	70	70
Institute of Adult Studies	149	164	180	198	216
Administration and General	1,052	1,105	1,160	1,218	1,279
Other	1,021	1,144	1,281	1,435	1,607
Total	21,515	23,689	25,703	27,945	30,373

Source: Kenya Development Plan, 1970-1974, p. 487. Compare with 1970/71 estimates in Appendix M .

As the main item in the recurrent cost of secondary education lies in teachers' salaries, it is here that the crunch comes. Incremental scales have led to an increase in salary costs of approximately 4% per annum for annual increments alone (approximately 3.8% per annum on the lower portions of the S 1 scale but over 5% per annum on the graduate scale). As at least 85% of the assisted teaching force is employed by the Teachers Service Commission and is paid in accordance with these scales, salary scales ensure the annual cost of education will spiral upwards. (There will be some relief through Kenyanization,

although the high cost of expatriate contract teachers has been partially offset by the large number of volunteers who have been available at little cost.) It is not surprising that during the last part of the decade just past the recurrent expenditures for education increased nearly K£1 million per year, a growth figure which being rather constant in absolute terms meant that in percentage terms it declined from an annual rate of 17 percent at mid-decade to a rate of 12 percent by the end of the decade. Nonetheless, this figure seems badly out of line with increases in total recurrent expenditures, which at the end of the decade were increasing by approximately 7 percent per annum.

Finally, as the cost of opening new classes appears to have been estimated unrealistically low on average, we anticipate that there may be increasing reason to restrict the number of new aided Form I classes during the last part of the Plan period in order to demonstrate financial accountability and remain within the limits set by the financial potentialities the Kenyan Government is likely to be able to realize. It is already clear that such contraints, if they are to be felt at all, will be felt most sharply toward the end of the Plan period, and perhaps one should then for the first time look forward to a rate of growth more nearly approximating the lower rather than the upper limit of the range in enrolments we have suggested in Projection 1 on page 39.

Planned and Projected Development of Secondary Education Through 1975

The new plan lists among its four educational priorities "the expansion of education in all parts of the country, with special programmes in the less (educationally) developed areas" and "the institution of more practically oriented course work in secondary schools." In aided secondary education, these aims were to be accomplished through the opening of 40 new Form I streams in 1970 and 30 new Form I streams a year thereafter, and by the addition of 14 new Form V (upper secondary) streams each year from 1970 through 1974. According to plan, this would lead to an increase in total enrolments in maintained and assisted secondary schools by 52 percent or at an annual compound rate of approximately 7.2 percent, the average rate in lower secondary being projected at 6.2 percent per year and at upper secondary at 20.1 percent per year. This would permit roughly the same proportion of Standard VII leavers to enter secondary school as was the pattern in 1968, the base year upon which the plan was projected. The projected enrolments by form and numbers of forms which this would entail providing , as presented in the Plan, appear as Table 17 on the following page.

The planned enrolments in maintained and assisted schools would represent a total percentage increase of 43 percent in lower secondary classes and 200 percent in upper secondary classes. The chief constraint operating to limit enrolments to the level suggested was recognized to be financial. Speaking to the allocation of resources, the Plan notes:

Table 17. A. Planned Expansion of Secondary Education, 1968-1974

Secondary School Class Development Schedule, 1969-1974
(Maintained and Assisted Schools) Number of Classes

Form	1968	1969	1970	1971	1972	1973	1974
I	420	455	495	525	555	585	615
II	390	420	455	495	525	555	585
III	365	390	420	455	495	525	555
IV	324	365	390	420	455	495	525
Total	1,499	1,630	1,760	1,895	2,030	2,160	2,280
V	88	102	116	130	144	158	172
VI	76	88	102	116	130	144	158
Total	164	190	218	246	274	302	330
Total Classes Forms I-VI	1,663	1,820	1,978	2,141	2,304	2,462	2,610

B. Enrolment in Kenya Secondary Schools, 1968 and Projected
(Maintained and Assisted Schools Only)
Numbers

Form	1968	1969	1970	1971	1972	1973	1974
I	15,169	15,930	17,330	18,330	19,430	20,430	21,530
II	14,388	14,670	15,400	16,760	17,730	18,790	19,760
III	12,889	14,200	14,560	15,290	16,640	17,600	18,650
IV	11,028	11,670	13,760	13,800	14,500	15,770	16,680
Total	53,474	56,470	60,850	64,180	68,300	72,590	76,620
V	1,734	2,240	2,780	3,380	4,030	4,740	5,160
VI	1,328	1,510	1,900	2,360	2,870	3,420	4,020
Total	3,062	3,750	4,680	5,740	6,900	8,160	9,180
Grand Total	56,536	60,220	65,530	69,920	75,200	80,750	85,800
Estimated Numbers of Students Qualified for UEA	-	870	980	1,230	1,530	1,860	2,220

Source: Kenya Development Plan, 1970-1974, p. 458.

> The claims against Government's resources far exceed the resources which are available with the consequence that it is inevitable that all people will not be satisfied with the choices which Government has made for the Plan period.
>
> There are several factors which have weighed heavily in Government's decision-making for the Plan period. These factors include the relative costs of education at various levels, the manpower requirements for sustained economic growth and the social priority assigned to the achievement of primary education.
>
> The resources required to maintain one student at the University for one year will maintain either 130 children in primary school or more than 15 children in secondary school. Looked at in another way, the decision to send one student to the University will deprive 130 children of Standard I education. The decision to send one student to secondary school will deprive more than eight children of a primary education....

Although it is difficult to see the proposed expansion of secondary education as "geared to provide sufficient numbers of individuals to fill the jobs which will be created by economic expansion and Kenyanization," this will be partially achieved by (1) an expansion of practical courses (provision being made for agricultural facilities in 75 additional schools, commercial facilities in 30, home science in 29, and industrial arts courses in 24), and (2) by a greater emphasis on science courses to provide a sufficient number of students with science qualifications to fill university places. The implications of this diversification for the supply of teachers are indicated in the next section of this report.

Attrition in aided secondary schools has tended to be limited. Several factors may account for this. First, although fees might be considered high compared to per capita income in the country (200 shillings in a day school, 450 shillings--or sometimes more--for a boy in a boarding school), there are generous provisions for bursaries. Most bursaries for needy students are provided by County Councils, but the Ministry also possesses funds with which it provides bursaries when Councils are unable to do so for deserving students. Second, safeguards are built into the system to ensure that admission to the schools is on the basis of achievement. Provincial Education Officers are changed with supervising admission to all assisted and maintained schools and no school can admit a child without the authority of the Provincial Education Officer. The PEO is expected to check all admissions with examination results, deleting poor selections and replacing them with more promising applicants. The system appears to have been working well, for school certificate results in Kenya (see Appendix E) have generally been good.

Although it will be increasingly necessary for secondary school certificate holders to become self-employed rather than expecting jobs in the wage economy, we judge from the increases in enrolments in the aided system during the past two years which (as we pointed

out) jumped well ahead of target, that enrolments are also apt to remain considerably ahead of targets stated in the Plan during the next five years. The chief constraints which are likely to be felt are the financial constraints referred to in the previous sub-section of this report. As the pressure of financial considerations may create both (1) greater demand that the central government provide support for Harambee schools which already exist, and (2) countervailing opinions in favor of diverting more funds to other levels of education as the number of secondary school students who find neither wage employment nor opportunities for further education or training mount, we expect that the soundest estimates we can make are those in the two "range" projections which conclude this section of the report. These projections, obviously, take account of the fact that the number of classes and hence the enrolments in aided schools had jumped considerably ahead of target by 1970, the year the Plan was ostensibly to go into effect. In Projection 1 we have worked from approximate enrolment figures for 1970 and indicated a range of further expansion based roughly upon a "slow rate of expansion" which would involve admitting some 1200 new students to Form I each year (approximately 35 new Form I classes) and a "fast rate of expansion" which would involve admitting 1600 students (approximately 45 new Form I classes). If the recent rates of growth prevail, it is the upper rather than the lower rate of expansion which promises to prevail; but the fact that a rapidly increasing percentage of Standard VII youngsters are now finding their way into either aided or unaided secondary schools suggests there may be some slowing of this recent rate.

We would judge at the same time that there is reason to hope that Form V and Form VI classes and hence enrolments at these levels will move upward quite rapidly. If successful completion of Form VI is to continue to be the preferred qualification for entry to the University of Nairobi, it is extremely important that considerable attention and effort be given both to ensuring an increasing number of youngsters with excellent General Certificates of Education to provide the entrants for upper secondary schools and that the number of places in upper secondary schools be expanded rapidly. Upper secondary education continues to be the most serious bottleneck in the flow chart of education, although Kenyan admissions to the universities in East Africa in 1970/71 achieved or surpassed projections in the Development Plan. The Plan calls for an increase in the number of Form V classes of 14 per annum during the period of the Plan, with average class sizes increasing approximately two students per class each year. Projection 2, which represents our estimate of probable growth of upper secondary classes, suggests a "slow rate of expansion" roughly in accordance with the rate of growth indicated in the Plan but allows for a "fast rate of expansion" of 18 new Form V's each year. In each case we have estimated a growth rate in the average size of Form V classes of two students per year until a class size of 28 is reached. In short, we would judge that the very rapid rate of expansion of lower secondary schools which has characterized the last Plan period will now be translated into a rate of growth of upper secondary schools in excess of that planned for.

PROJECTION I. PROJECTED RANGE OF ENROLMENTS IN AIDED LOWER SECONDARY FORMS

	Slow Rate of Expansion[1]					Fast Rate of Expansion[2]					
Year	Form I	Form II	Form III	Form IV	TOTAL	Form I	Form II	Form III	Form IV	TOTAL	RANGE
1970	23,000	18,000	16,000	14,000	71,000	23,000	18,000	16,000	14,000	71,000	---
1971	24,200	21,800	17,100	15,200	78,300	24,600	21,800	17,100	15,200	78,700	78,300-78,700
1972	25,400	23,000	20,700	16,200	85,300	26,200	23,400	20,700	16,200	86,500	85,300-86,500
1973	26,600	24,100	21,800	19,700	92,200	27,800	24,900	22,200	19,700	94,600	92,200-94,600
1974	27,800	25,300	22,900	20,700	96,700	29,400	26,400	23,700	21,100	100,600	96,700-100,600
1975	28,000	26,400	24,000	21,800	100,200	31,000	27,900	25,100	22,500	106,500	100,200-106,500

Figures rounded to nearest 100 to avoid any spurious impression of the accuracy of projections.

1. As a "slow rate of expansion" we have allowed for increasing enrolments in Form I classes by 1,200 students each year, a rate of expansion approximating the addition of 35 new Form I classes of about 35 students each. In both fast and slow rates of expansion we have allowed for an attrition rate of five percent per annum between Forms. Development Plan targets call for addition of only 30 new Form I classes per annum.

2. As a "fast rate of expansion" we have allowed for increasing enrolments in Form I classes by 1,600 students each year, a rate of expansion approximating the addition of 40 new Form I classes with an average enrolment of 40 students. Recent expansion of aided secondary education would actually exceed this rate.

PROJECTION 2. PROJECTED RANGE OF ENROLMENT IN ALL UPPER SECONDARY FORMS[1]

A. CLASS

	"Slow Rate of Expansion"[2]			"Fast Rate of Expansion"[3]			Range
	Form V	Form VI	Total	Form V	Form VI	Total	
1970	99	92	191	99	92	191	191
1971	113	98	211	117	99	216	211-216
1972	127	113	240	135	117	252	240-252
1973	141	127	268	153	135	288	268-288
1974	155	141	296	171	153	324	296-324
1975	196	155	324	189	171	360	324-360

B. ENROLMENTS

	Form V	Form VI	Total	Form V	Form VI	Total	Range
1970	2376	2024	4300	2376	2024	4300	4300
1971	2940	2260	5200	3040	2260	5300	5200-5300
1972	3560	2790	6350	3780	2890	6670	6350-6670
1973	3950	3380	7330	4280	3590	7870	7330-7870
1974	4340	3750	8090	4790	4070	8860	8090-8860
1975	4730	4120	8850	5290	4550	9840	8850-9840

NOTES:

[1] In both "fast" and "slow" rates of expansion we have allowed for an attrition rate of 5 per cent between Form V and Form VI. Enrolment projections are rounded to the nearest 10 from 1971 on.

[2] As a "slow" rate of expansion we have allowed for an increase of 14 Form V classes per year. This is the estimate made in the Development Plan but appears to exceed considerably the rate of increase the last few years. A sliding scale is used in computing the number of students per class, a scale intended to reflect the policy of the Kenya Government to increase class size in Upper Secondary Schools. A base figure of 24 students per class in Form V for 1970 was used. Average Form V class size is assumed to increase by 2 students per year until an average size of 28 is reached. This rate of increase in average class size corresponds roughly to the rate used in the Kenya Development Plan, 1970-1974, p. 458, Tables 17.8 and 17.9. We have assumed base figures of 99 Form V classes and 92 Form VI classes in 1970, a figure approximating the total number of classes existing in upper secondary schools as of that date.

[3] As a "fast" rate of expansion we have allowed for an increase of 18 Form V classes per year. This rate, although considerably exceeding recent rates of expansion, appears called for by the recent rapid rates of growth in lower secondary forms and by the requirements of institutions which it is hoped will admit students only after completion of Form VI studies.

SECTION II

PROJECTED EXPANSION OF OTHER TYPES OF SECONDARY LEVEL EDUCATION

The preceding section of this report indicated the rate of expansion which we consider probable for the aided and the unaided general secondary schools in the period through 1975. It also indicated several of the non-formal or non-school types of educational opportunities which are now being provided for Kenyan youth. This chapter considers the other major types of secondary level institutions, the plans which have been made for their expansion, and any shifts in their programs which might influence the demand for teachers in them.

The Projected Development of Primary Teacher Training in Kenya

As in most countries in Africa, the explosion in primary school enrolments which immediately preceded and followed independence has created enormous demand for primary school teachers, and primary school teaching today constitutes one of the major job opportunities in the wage earning sector of the economy. Not all persons who have taught in the primary schools have had secondary education or any secondary level training, but future plans would call for some secondary level preparation for all such teachers. The Ministry of Education reported that in 1968 some 27.5 percent of the primary school teachers in Kenya were unqualified. By the following year the percentage of unqualified teachers had declined to 21.6 percent, representing considerable improvement. The new Development Plan (1970-1974) calls for the preparation of teachers both to replace or upgrade the remainder of these unqualified teachers and to permit considerable further expansion of primary education. The Plan anticipates the consolidation of the 24 colleges existing in 1968 into 17 colleges by the end of the plan period, the consolidated colleges generally accommodating some 480 pupils. Even more recently, the Report of the Commission of Inquiry (the Ndegwa Report, 1971) has recommended reconsideration of this target, proposing instead the development of 20 colleges with an ultimate enrolment of 600 students each.

Whereas we approve the principle of consolidation of colleges into larger institutions, an examination of the locations of the 17 colleges which it was proposed be enlarged leaves certain large areas of the country without a college anywhere near. We consider institutions such as teachers colleges in developing countries to be important centers of development, i.e., they provide incentive to overall or general development. We would therefore recommend that not more than four of the existing 24 colleges be closed down and would suggest that enrolment in the remaining colleges be increased to some 20 classes of 24 students each in each college, that is, a total enrolment of about 720 students in each college. It was hoped that consolidation could be accomplished partly through new or improved facilities, the

first of which were made possible by the first phase of an IDA loan and completed during 1969. Further building will be required to meet the future expansion which appears desirable, and it is not certain that the target figures we have suggested could be fully met by 1975.

Any problems besetting primary schools usually cast their shadow over teacher training as well. The heavy cost of primary education (which consumes 50 percent of central government recurrent expenditures on education) requires economies if the proclaimed goal of universal primary education is to be approached. Kenya looks forward to moving toward this goal in two ways. First, the new plan calls for more "economical" use of teacher time in primary schools, target figures for average teacher:pupil ratios in primary schools increasing during the plan period from the 1:33 (which prevailed in 1969) to a ratio of 1:40 aimed at in 1974 (the last year of the plan period). In 1970, there were 34 pupils per teacher, representing some movement toward the latter figure. Using this sliding guideline, the plan looks to the growth of primary school enrolments and to meeting the resulting demand for qualified primary school teachers as shown in the following table:

Table 18. REQUIREMENTS AND SUPPLY OF PRIMARY SCHOOL TEACHERS
(thousands)

	1969	1970	1971	1972	1973	1974
Primary School Pupils	1,283	1,385	1,487	1,593	1,723	1,833
Pupil/Teacher Ratio	34	35	36	37	38	40
Demand for Teachers	37.7	39.6	41.3	43.1	45.3	45.8
Supply--(Trained Teachers)						
(a) From previous year less 4 per cent wastage	26.4	28.8	31.3	34.0	36.9	40.0
(b) College Output	2.4	2.5	2.7	2.9	3.2	3.2
(c) Upgraded Teachers	1.1	1.1	1.2	1.2	1.3	1.3
(d) Untrained Teachers (Residual)	7.8	7.2	6.1	5.0	3.9	1.3
Supply of Teachers	37.7	39.6	41.3	43.1	45.3	45.8

Source: Kenya Development Plan, 1970-1974, p. 467

As this table reveals, the task of filling the gap between total teacher need and the number of qualified teachers available will be met both by pre-service courses and by upgrading courses. In the past, the pattern of teacher training has unquestionably been greatly influenced by the lack of sufficient persons with secondary education who could be trained as primary school teachers. As a result, the largest number of teachers in training have been those lacking general secondary education who entered training immediately after having received their Certificate of Primary Education (CPE). This lack of general education among entrants is, however, not the only problem confronting efforts to upgrade the level of teacher

training programs; for the financial problems which arise from application of salary scales have seemed to dictate that a large proportion of the teachers must be those who have no more general education than that provided in the primary school. (In the past, especially during the period when local governments were in charge of the financial aspects of primary education, the cost of employing trained primary teachers sometimes led local councils to employ untrained teachers even when trained teachers were available. It remains to be seen if the new system whereby the central government has taken over the financial burden of primary schools directly will eliminate this problem, although it appears likely that it will tend to do so.)

Recognizing the high cost of better educated teachers, however, the Kenya Development Plan continued to call for the preparation of large numbers of teachers who have no more general education than that they acquired in the primary school. There is, of course, no longer a shortage of people with secondary education; in fact, there is a growing number of unemployed secondary school leavers. In recognition of this fact, the Report of the Commission of Inquiry (May, 1971) recommended that the lowest qualification for entry into a teachers college be raised to Kenya Junior Secondary education. We would heartily concur in this recommendation, believing that the use of persons lacking at least that level of general education represents a false economy which it is nearly impossible to justify.

The projected expansion of primary teacher training contained in the new Development Plan appears in the table below.

Table 19. FIRST YEAR ENROLMENTS, PRIMARY TEACHER TRAINING COLLEGES (Numbers)

Qualifications	1970	1971	1972	1973	1974
P.1	825	875	1,000	1,000	1,000
P.2	1,325	1,200	1,525	1,525	1,525
P.3	1,350	1,400	1,525	1,525	1,525

Note: P.1 teachers have a basic qualification of School Certificate plus two years training. P.2 teachers have a basic qualification of at least two years of secondary education, but without a School Certificate, plus two years training. P.3 teachers have a basic qualification of C.P.E. plus two years training.

Table 20. OUTPUT OF PRIMARY TEACHERS FROM TEACHERS TRAINING COLLEGES (numbers)

Qualifications	1970	1971	1972	1973	1974
P.1	460	644	759	805	920
P.2	1,012	1,081	1,219	1,104	1,403
P.3	1,242	1,127	1,242	1,288	1,403
Total	2,700	2,900	3,200	3,200	3,700

Source: Kenya Development Plan, 1970-1974, p. 467.

Indications are that the output of primary teachers as contained in the table on the preceding page is being exceeded. The figures (actual) for 1970 are contained in Table 21 below. In 1971, the statistics file for 1970 shows that 871 P.1 teachers, 1295 P.2 teachers, and 1381 P.3/P.4 teachers are finishing this year (1971). Thus, not taking into account failures, the likely number is 3547. The actual figure as to those likely to pass, we would therefore judge, will be in the neighborhood of 3400.

Table 21. PERFORMANCE ON TEACHER CERTIFICATE EXAMINATION, 1970

Grade	Pass	Referred	Pending	Fail	Withdrawn	Total
P.1	722	14	3	2	24	765
P.2	1061	48	12	9	36	1166
P.3	1196	82	17	8	31	1334
P.4	34	4	2	0	2	42
Total	3013	148	34	19	93	3207
U.Q. Teachers (Those who attended in-service courses in order to be graded P.3)	1579	247	6	118	58	2004
Grand Total	4592	491	40	137	151	5211

Source: Derived from Kenya Institute of Education Progress Report, 1970/71, dated 10 May 1971.

The output of teachers in 1970, the probable output of teachers in 1971, and the expansion of teacher training recommended by the Commission of Inquiry in 1971 all lead us to believe that actual enrolments in teachers colleges will exceed the targets set in the Development Plan. Our own estimates of enrolments, therefore, fall within the ranges proposed in Projection 3 below. Speed of development may depend partly upon the rapidity with which expanded facilities can be provided.

Projection 3. PROJECTED ENROLMENTS IN PRIMARY TEACHERS COLLEGES, 1970-1975

Year	Projected Enrolment Range
1969	5126 (actual)
1970	6732 (actual)
1971	7,200-7,500
1972	7,400-7,700
1973	7,600-8,000
1974	7,700-8,100
1975	7,800-8,200

There is, of course, no ideal solution to the problem of using teachers with little general education. The funds for any significant upward change in the "mix" of different levels of teachers will be hard to come by during the period immediately ahead. Nonetheless, we would anticipate that there both can and will be a considerable improvement in the "mix" before 1975.

Many reasons lead us to believe that there will be no shortage of suitable students for the teachers colleges in the period ahead. We have indicated elsewhere that teaching is not an unattractive vocational choice to many in Kenya, and it is certain to become increasingly attractive with the implementation of new salary scales recommended by the Commission of Inquiry in May, 1971. (It has been officially announced that the new scales will be implemented effective 1 July 1971.) These scales, which are presented in part in the appendices to this report, are to be supplemented by housing allowances where housing is expensive and cannot be provided by the school. Other benefits and responsibility allowances make the long term career prospects of teachers increasingly attractive. In short, for the first time, teachers of all grades have come out well in salary scales when compared with other persons in government. These rewards, costly though they will be to Government, should pay dividends in terms of conscientious teaching, the attraction of better educated persons into the profession, and continuity in teaching. Certain changes in program, which should be far less costly or should actually effect economies in terms of the actual output of teachers who pass their examinations and can make positive contributions in the primary schools, deserve mention. These possibilities must be regarded not as panaceas but as means by which it would appear redistribution of priorities and resources might provide more education of equal or better quality at no greater expense than is currently promised.

In making the following comments we acknowledge our conviction that significant educational change (that is, change which alters education from meaningless rote to significant understanding), is most apt to be provided by teachers who themselves possess considerable general education and demonstrate the security this education makes possible. Moreover, we believe that experiments in modifying school programs to bring them into line with the needs of persons living a rural environment are most apt to occur when teachers are themselves reasonably well educated. When these considerations are coupled with that fact that there is a rapidly growing reservoir of youngsters with some or complete secondary education, it becomes clear that Kenya cannot really afford to continue to use primary school certificate holders as the material for its teachers colleges. This is recognized by the profession in Kenya, and the publication New Directions in Teacher Training clearly indicates a conviction that over the long term a change in direction must be taken. If it is to be taken in the proximate future, however, it is important that it not be an exorbitantly expensive change. Accelerating this change, we believe, would involve at least three beginning steps, steps which would significantly alter the course-mix in the training colleges and is therefore basic to this report. First, it is probably possible to reduce the number of years of training provided those who already possess their School Certificate. A sizable portion of the program in training colleges

(approximately two-thirds) appears at present to consist of little more than rehashing material presented in secondary schools; and as urgent as the two year program which allows for providing this general education may be for the pupil who has not progressed beyond primary school, it is not clear that two years of training are a necessity for entrants already possessing full secondary education. (In the long run, of course, two or more years of such training would be desirable to do full justice to the professional preparation of the teacher. With primary school teachers constituting the largest single occupational group in middle level manpower, however, consideration might also appropriately be given to the advantages and disadvantages of introducing a course in Principles of Education in the general secondary school, preferably leading to a paper in the General Certificate of Education examination. Countries interested in providing comprehensive curricula at a pre-vocational level have, in Africa, almost consistently overlooked this possibility. Such a course, preferably preliminary to the one year professional course, would be of value to all mothers whether or not followed by the subsequent professional course; while job opportunities as primary school teachers will be those most readily available to married women outside of the major urban centers.) Second, it is important that attention be given to preparing training colleges tutors for teaching in the earliest grades of the primary schools. There is currently great inefficiency in the practice which permits poor foundations to be laid for all subsequent education; and poor teaching in early primary grades is perhaps the most expensive of all types of poor teaching, when long range as well as immediate costs are reckoned. Third, it seems clear that Kenyan practice has too often placed persons who were really best qualified to be secondary school teachers in positions as tutors in the training colleges. This practice results in placing the task of preparing teachers for the most crucial years of all in the hands of those who are almost totally unqualified to provide the required preparation. (Good teaching even in the "content" or "subject" courses of a teachers college program involves concurrent attention to the methodology of teaching that "content" or "subject" to persons of a younger age.) We therefore strongly recommend that the degree course for college tutors which has been discussed during the last few years be implemented as soon as possible. This would be an undergraduate and a graduate degree program intended for carefully selected, experienced teachers interested in becoming lecturers in the teachers colleges. Since the new salary scales proposed by the Ndegwe Commission give special recognition to those teaching in teachers colleges, many well-qualified applicants should be attracted into programs designed to prepare them for posts as tutors.

Projected Expansion of Secondary Technical and Vocational Education

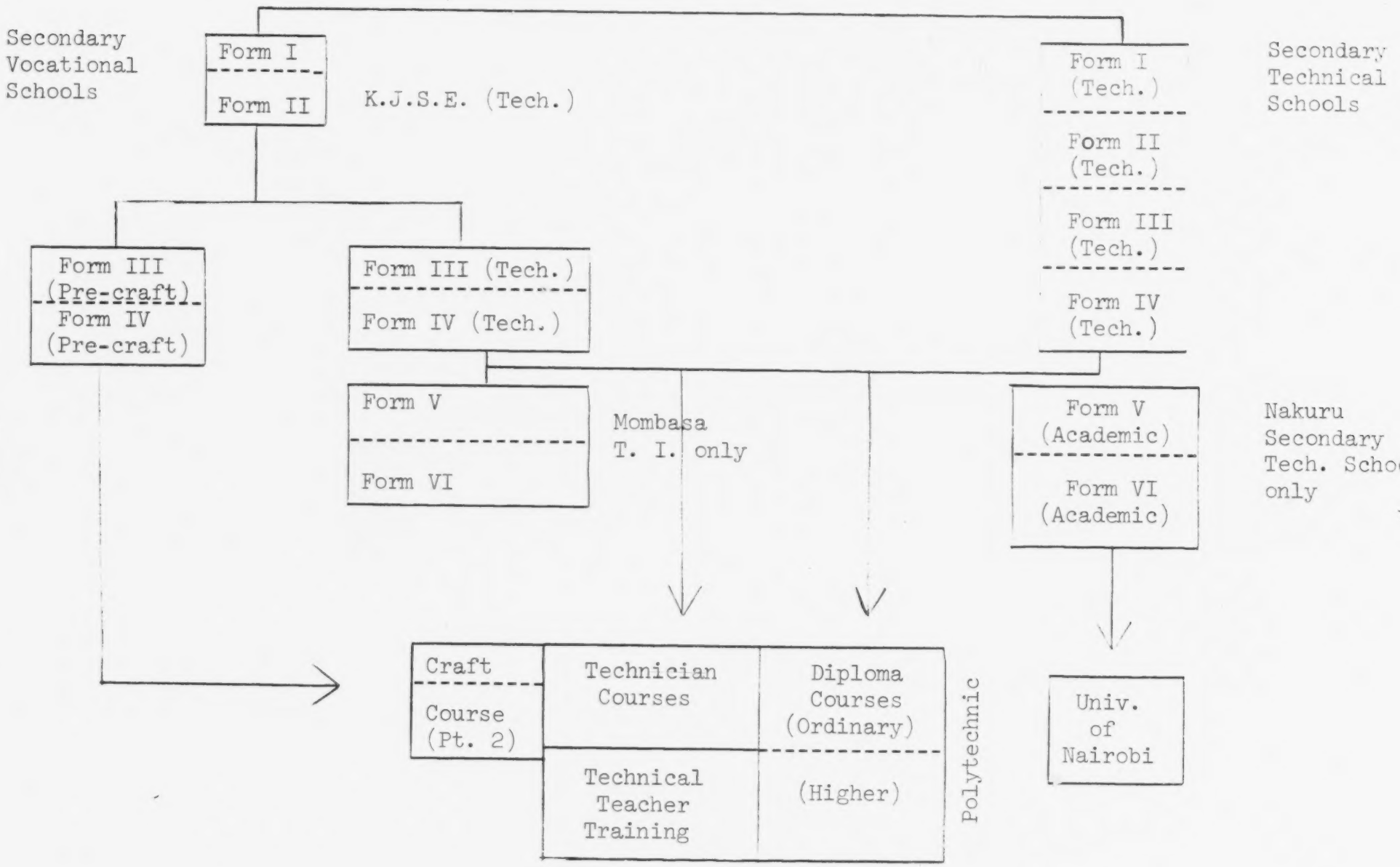
Kenya possesses an extensive system of vocational and technical schools at both the secondary and immediate post-secondary levels. This system, which has grown partly in response to an earlier Manpower Survey and in light of the recommendations of the Ominde Commission (1964) is intended both to provide trained manpower directly for industry and

to prepare some students to enter the university in technical fields. Although these schools serve relatively small numbers of pupils when compared with the general secondary schools, they constitute strategic components of the educational system and both the new Development Plan published in 1969 and the even more recent Report of the Commission of Inquiry, 1971 (the Ndegwa Report) have called for rapid expansion of enrolments in the technical and vocational schools which exist at the secondary level and for the simultaneous upgrading of a number of former trade schools. The demand for teachers in these schools is apt to be a significant element in the total demand for teachers in Kenya. This demand is quite distinct from the demand for teachers of industrial arts, an area which is viewed as a pre-vocational element in general education in secondary schools. Probable development in several types of vocational schools should be considered.

1. Secondary Vocational Schools. Kenya today possesses eight secondary vocational schools, schools which have been upgraded from former trade schools and which are intended to provide students with a secondary education of quality while at the same time providing them with skills basic to specific occupations. (The Mombasa Technical Institute also offers a secondary vocational school course at present.) The program in these schools is not intended to be preparatory for the university but rather is intended to provide students with the type of education which will enable them to take a place in industry or receive further training as craftsmen or technicians. These schools admit students at the C.P.E. level and, during a two year program, prepare them to sit the K.J.S.E. (Technical) examination. Diagnostic tests offered during the second year of the program permit routing students into either a pre-craftsman course or a pre-technician course after they have completed their K.J.S.E. (The pre-technician course was offered in only two of the schools in 1969.) Students who enter the pre-craft course for the last two years of their secondary education undergo a program with a heavy practical bias, but it is nonetheless intended that they will have a sound secondary education prior to the time they enter apprenticeship. Both programs are, in the sense that job-specific training will come later, intended to be largerly prevocational rather than vocational in the strict sense of the word. The Report of the Commission of Inquiry (the Ndegwa Report) refers to some dissatisfaction on the part of employers, who look to the products of these institutions for "finished" technicians or craftsmen. While programs in such schools should be worked out and always subject to revision on the basis of close consultation with prospective employers, we would nonetheless endorse the principle that sound prevocational education should remain the principal function of the vocational schools, and that post-secondary apprenticeship training, evening courses, and sandwich courses provide the soundest methods of providing job-specific training for modern industry and trades.

The new Development Plan, which gives perhaps the most accurate available estimate of the future of the vocational schools, looks forward to expansion in the nine maintained secondary schools from a total enrolment of 2,212 in 1968 to a target enrolment of 3,935 in 1974. Expansion will be achieved not by opening new schools but by increasing enrolment in the existing schools. By 1974 it is hoped

Diagram 1. TECHNICAL EDUCATION IN KENYA



that no Secondary Vocational School will have an enrolment of less than 300 students. The Development Plan, while looking forward to expanding enrolments, makes no provision for the addition of courses in commercial or business subjects, subjects which are at present offered in only one of these schools. It is not surprising therefore, that the Ndegwe report urges the introduction of business courses into these schools. While Kenyanization of clerical or secretarial positions has been almost entirely achieved at all but the highest levels in commerce as well as in the public service, it is not clear that the level of qualification has always been up to the demands of the particular job; and we would anticipate that some growth of commercial and business offerings in the vocational schools should be anticipated.

In addition to this expansion in the maintained system, it is expected that enrolments will climb from 213 to approximately 600 in two private Secondary Vocational Schools, the Christian Industrial Training Centres in Nairobi and Mombasa. Although this rate of expansion in enrolment can be partly compensated for by the economies in staffing which larger institutions will permit, the demand for new and replacement technical and craft teachers in these schools promises to be great and is considered in projections later in this report.

2. Secondary Technical Schools. Four Secondary Technical Schools offer a Cambridge School Certificate (now East African Certificate of Education) curriculum, providing four year courses of general education in which biology and history have given way to geometric drawing, building construction, and metal work engineering. Selected students from the four schools may proceed to a further two year academic course at Nakuru, thereby preparing for the Higher National Certificate and admission to the university. It is intended that this academic path will not only have provided students with the background of science and mathematics required for engineering and technological subjects but will have acquainted them with the world of technology and given them basic manipulative skills which they will require. The four existing schools were brought up to technical school standard with the assistance of the International Development Association, and it is expected that a fifth such school (located at Nyeri and ultimately possessing an enrolment of 840 students) will be opened during the present plan period. If building and expansion remain on target, enrolments in Secondary Technical Schools will have nearly doubled between 1968 and 1974, rising from an actual enrolment of 1,596 to a target enrolment of over 2,800 by the latter year. As much of this increase in enrolment will be accounted for by the opening of the new school at Nyeri, the rate at which expansion occurs will depend largely upon keeping the building program on target. Heavy development expenditures are anticipated for the fiscal years from July, 1970 through July, 1973 to permit this building program to progress.

There is, however, question as to whether or not even this rate of expansion will be sufficient to meet the country's needs in technical and engineering fields. The Commission of Inquiry has, consequently, recommended this year "that much greater emphasis should be placed on this type of training and that the four schools in question namely Nakuru, Nairobi, Mombasa and Sigalagala should be

developed and enlarged so that they are all able to offer science courses at Forms 5 and 6 level. It is considered that students with this type of technical background are essential to the needs of the country and would form ideal recruits for further engineering and technological courses at the University of Nairobi and the Kenya Polytechnic." It is also anticipated that Mombasa Technical Institute may soon become a full polytechnic. The Commission goes on to recommend, inter alia, that the Government consider establishing seven provincial post-secondary technical training institutions, institutions which might cater for several of the lower and craft and technical courses currently being offered at Mombasa Technical Institute and Kenya Polytechnic. The type of expansion proposed, we would point out, would considerably increase the demand for high level technical teachers, teachers which Kenya is at yet quite unable to produce in the numbers or at the level required. The cost for this expansion of training, it is hoped, could be met partially from the Industrial Training Levy Fund, expenditures being administered jointly by the Ministry of Education and the National Vocational Training Council.

3. Kenya Polytechnic. Although largely a post-secondary or parallel institution, Kenya Polytechnic deserves mention in this report because of its close relation to the secondary technical and vocational schools. The functions of the Polytechnic, as described in the Development Plan, indicate the wide range of its programs:

> The major function of the Polytechnic is to provide courses of instruction for apprentices and trainees in industry and commerce which, when linked with practical in-service training, produce skilled and competent personnel. It also provides courses to enable students to qualify for University entrance and other forms of higher education, and pre-employment courses whereby students attain a degree of competency enabling them to be usefully employed and capable of on-the-job training...The majority of the courses at the Polytechnic are offered on a part-time basis (sandwich, block-release, day-release or evening classes) for sponsored students from Government, the other public services and the private sector.

The essentially post-secondary nature of the institution is indicated by the fact that approximately 75 percent of its courses were at post School Certificate level in 1968 and some one fifth of these were at post Higher School Certificate level. As production of students from the Secondary Vocational and Technical Schools increases, it is expected that the Polytechnic will offer even less preliminary or secondary level courses. Some indication of the distribution of its students by fields can be gained from the enrolment figures for 1969, at which time enrolments stood as follows:

Engineering	1,093	Commerce	166
Building	354	Printing	80
Science	246	Catering	60

The current Development Plan looks for an 8 percent annual increase in total enrolments, a rate of increase which would lead to an enrolment of 3,000 by 1974. Some of this increase will be accounted for by the development of departments of teacher training, hotel management, and business studies. The teacher training program, which actually began in 1968, encountered initial difficulties as students enrolled in an induction program frequently did not end up having passed their School Certificate or did not meet the induction standards of the polytechnic program.

Above these schools, and standing at the apex of the system of technical education, is the University of Nairobi, which offers courses in architecture, commerce, engineering, surveying and veterinary science. Although both the University and Kenya Polytechnic are substantially post-secondary institutions, the fact that the preparation of secondary level teachers occurs in each merits brief mention of their programs here and greater consideration of the relevant staffing needs or potentialities in later sections of this report. We would again note, however, that any decision to upgrade Mombasa Technical Institute into a full polytechnic would considerably increase Kenya's requirement for technical teachers. We would judge this is highly likely sometime during the period under consideration in this report.

Probable Expansion of Lower and Intermediate Agricultural Training Through 1975

The importance of agriculture in the economy and society of Kenya was described in some detail in the introduction to this report. Suffice it to reiterate here that in Kenya agriculture provides the sole livelihood for three quarters of the population (and even a portion of the livelihood of even many who reside in urban areas), accounts for over 60 percent of Kenya's exports, and (with agriculture-related industries) contributes 40 percent of the Gross Domestic Product. It is not surprising that considerable attention is thus being given to agricultural education and training. This was emphasized by the Report of the Agricultural Education Commission, published in 1967. The new Development Plan promises a further extension of efforts in this field, although relatively little of this effort will be devoted to formal agricultural schools which accept students following the C.P.E. The chief emphasis at the secondary level will rather be on the introduction of agricultural education into the general secondary schools. It is intended that agriculture be introduced into 75 secondary schools in which agricultural workshops will be financed under an I.D.A. loan. This program is not intended to qualify persons to be professional farmers but rather is intended to help students appreciate the role of farming in Kenya and to encourage students to look to modern farming as a vocation.

This formal school program is, however, supported by a large number of nonformal educational activities which will serve similar purposes. The 4-K Clubs, started by the Ministry of Agriculture and Animal Husbandry, touch many thousands of young Kenyans, although the clubs have generally been most successful with those youth who

are in school. [4-K stands for the four Swahili words: Kuungana (to unite); Kufanya (to work); Kusaidia (to help) and Kenya.] Fordham and Sheffield (see references) reported that by 1966 there were some 850 4-K clubs in Kenya enrolling over 25,000 members.

The second major type of nonformal agricultural education institution is the Farmers Training Center. The centers, which increasingly enroll women as well as men, provide short courses up to two weeks in duration for farmers. (The Agricultural Education Commission recommended five day courses on average.) The centers can regularly enroll 30 to 100 trainees at a time and numbered 29 at the time the 1970-1974 Development Plan was published. The Plan projects an additional five regular Farmers Training Centers during the Plan period. One Large Scale Farmers Training Center, which provides a full year of agricultural training for up to 100 large scale farmers or farm managers, already exists; and this is to be supplemented by establishing a second center during the Plan period. The Farmers Training Centers have encountered serious problems in staffing. The normal center requires a staff of approximately 7 instructors. The principal is regularly an Assistant Agricultural Officer or Livestock Officer and the teachers are Agricultural Instructors or Animal Health Assistants. The Agricultural Education Commission reported teacher morale to be unusually low at the Centers, both because of the heavy work load required of teachers (including weekend work which would not normally be required in the field) and because of the fear of being overlooked when the time came for promotion. As a result, the Commission noted, "some individuals even regard posting to an F.T.C. as a penalty." The Commission recommended that F.T.C. staff should undergo "specialisted teacher training"; and that having received this training, teachers "should be remunerated accordingly, bearing in mind the extra direct and indirect costs related to their assignment in the F.T.C., including the continuous responsibility associated with residential students, farm animals, and the management of the farm." The Commission further recommended that the post of Principal should by 1980 be filled by a graduate, noting that in none of the regular Farmer Training Centers did a Kenyan graduate hold such a post in 1966. The teacher requirements as estimated by the Commission for the decade of the 1970s are as presented in Table 23 on the following page. It is anticipated that in almost all cases teachers will require considerable practical experience in addition to the educational qualifications listed, for it is specifically recognized that the direct teaching of farmers will require persons who can communicate with them in a convincing and realistic manner based upon such experience. Based upon previous experience, the figures projected by the Commission allow for very high wastage rates, the most extreme wastage being allowed for in Home Economics in which field it is estimated that some 90 new teachers will be required in the decade although only 40 posts will exist in the centers even in 1980!

Four other agricultural institutions at the intermediate level (or at levels which will upgrade persons with lesser qualifications through a certificate course) must also be staffed during the period ahead. Estimates of new staff required for Egerton College (which offers three year and two year diploma courses) are for 60 teachers,

Table 22. AGRICULTURAL EDUCATION COMMISSION ESTIMATES OF ADDITIONAL STAFF REQUIRED FOR FARMERS TRAINING CENTERS, 1970-1980

Range Training Centers	8 Postgraduate	(principals)
	15 Diploma	(teachers)
	11 Certificate	(teachers)
All Other Farmer Training Centers	39 Degree	(Principals)
	63 Diploma	(Teachers)
	24 Certificate	(Ag. and Animal Health)
	90 Home Ec. Diploma	(Home Ec. Teachers)
Large Scale Farmer Training Centers	9 Degree	(Principals and Teachers)
	5 Certificate	(Teachers)

Source: Report of the Agricultural Education Commission, p. 165

those for the Animal Health and Industry Training Institute (in which it is hoped to replace UNDP degree level staff with Kenyans) are for 25 teachers, and those for two Agricultural Institutes are for 37 degree level teachers. The latter will, however, permit a net decline in diploma persons as these are replaced by degree teachers. Some indication of the rate at which staff will be required is suggested by the projected student enrolments and output of these institutions as contained in the Development Plan. How these should be translated into needs for expatriate personnel is difficult to determine, although it must be expected that Kenyan degree level instructors will be forthcoming only slowly as the Faculty of Agriculture has only recently been established at the University of Nairobi.

Table 23. PROJECTED STUDENT ENROLMENTS AND OUTPUT AT AGRICULTURAL TRAINING INSTITUTIONS (KENYA DEVELOPMENT PLAN, 1970-1974)

		Number of Students				
		1969/70	1970/71	1971/72	1972/73	1973/74
Egerton College	Enrolment	560	560	560	560	560
	Output	119	209	210	210	210
Embu	Enrolment	150	180	230	250	250
	Output	64	80	90	120	120
Kakamega	Enrolment	-	70	200	270	270
	Output	-	-	60	130	130
Ahiti	Enrolment	250	310	310	310	310
	Output	70	120	145	145	145
Naivasma Dairy Training School	Enrolment	60	60	60	60	60
	Output	180	180	180	180	180
Thomson's Falls Large-Scale F.T.C.	Enrolment	112	115	115	115	115
	Output	110	110	110	110	110
Eldoret Large-Scale F.T.C.	Enrolment	-	200	320	350	400
	Output	-	200	320	350	400

Source: Kenya Development Plan, 1970-1974, p. 220.

It is clear that if Kenya is to place qualified instructors in its formal agricultural training institutions it will have to do this in the face of other heavy demands for its best trained agricultural personnel. It is equally clear that for the period through 1974 there is apt to be a continuing need for expatriate degree holders, for to date Kenya has not only been unable to provide instructors qualified at this level but has not begun to meet the needs of the private sector, needs which may make inroads into professional staff in the civil service.

SECTION III

PRODUCTION AND RETENTION OF SECONDARY LEVEL TEACHERS

The Supply and Quality of Secondary School Staff in Recent Years

The period which has ensued since Indpendence has seen not only, remarkable expansion of secondary education but an accompanying acute shortage of well-qualified staff. Table 24 on the following page reveals that while it proved possible to increase the number and percentage of well-qualified Kenyans teaching in the aided schools during the rapid secondary school expansion which occurred during the past decade, the staffing of the unaided schools (chiefly but not exclusively Harambee schools) was possible only because large numbers of local staff who were either unqualified or who were qualified only for primary school teaching were employed.

Analysis of the figures in the table makes it clear that Kenya still must deal with three problems simultaneously: (a) it must provide more and more teachers for an expanding school system, (b) it must upgrade or replace unqualified local teachers, and (c) it must phase out expatriate teachers who still comprise a large percentage of the best educated teachers currently teaching in the secondary schools. Before considering the steps which have been introduced to solve these problems by 1975, or the recommendations we would make to ensure that their solution leads to qualitative improvement in the education given, we should like to give brief attention to the nature and limitations of the expatriate component in the teaching force which was being used at the turn of the decade.

The Expatriate Component at the End of the 1960s

As the figures on the following page reveal, the expatriate component in the teaching force remained very large in Kenya through the end of the decade just past. It is to be hoped that 1972 will see the beginning of a sharp decline in the number of expatriates in teaching, a decline, however, which will occur only by virtue of a corresponding decline in the percentage of graduate teachers in the teaching force. Some notion of the size of the expatriate component can be gained for the figures for 1968-1969. In that year Kenya employed some 2,650 teachers in its general secondary schools (aided), some 355 teachers in its technical schools, and some 475 teachers in its primary teacher training colleges. (These figures would include those employed by the Kenya government in the establishment and by the Kenya Teaching Service Commission but would not include the sizeable number of volunteers who were also teaching in the schools. See also Appendix L.)

To assess the continuing demand for external help at this point one needs merely to consider the number of expatriates who were still

Table 24. Staffing of Secondary Schools in Recent Years

	1966	1967	1968	1969	1970	1971
Schools Maintained or Assisted	199	206	232	263	300	328
Schools Unaided	201	336	369	431	483	
Total Staff in Maintained or Assisted Schools	2042	2320	2715	3062	3527	
Total Staff in Unaided Schools	962	1733	1929	2205	2354	
Non-Citizen Staff in Aided Schools	1481	1632	1853	1922	1840	
Citizen Staff in Aided Schools	561	688	862	1140	1687	
Percent Localized	27%	30%	32%	37%		
Non-Citizen Staff in Unaided Schools	484	695	736	879	920	
Citizen Staff in Unaided Schools	479	1038	1193	1326	1434	
Percent Localized	50%	60%	62%	60%		
Unqualified Staff						
In Maintained or Assisted Schools:						
Non-Citizens	290	362	461	437	401	
Citizens	91	146	183	216	258	
In Unaided Schools:						
Non-Citizens	217	430	733	504	536	
Citizens	246	645	800	890	1005	

Sources: Derived from data presented in Cammaerts, "Priorities in the Preparation of Secondary Teachers," the Ministry of Education Annual Report, 1969; Ministry of Education Statistics File for 1970, dated March, 1971 (Planning and Statistics Division).

being newly employed. In that year, for example, 242 posts were actually filled by contract in the United Kingdom, and it must be assumed that a considerable number of indents went unfilled. (These posts included 12 in technical fields, 53 in English, 44 in mathematics, 48 in physical science, 16 in biological science while most of the rest were in a miscellany of other arts fields.) A sizable number of other expatriates were recruited locally by missions and accepted by the Kenya Teachers Service Commission that year. In the same year, the Volunteer Services Overseas was providing 40 teachers for government aided schools (and 37 teachers for Harambee schools.) The Peace Corps was providing 200 secondary schools teachers, many of whom were, however, also teaching in Harambee schools. CUSO at the same time was providing 26 teachers for secondary schools and primary teacher training colleges, while a sizable number of Teacher Educators were being employed from the United States. With VSO tours of service generally of one or at the most two years duration, and Peace Corps and CUSO tours of two years duration, impermanence in staffing became a built-in factor in the school system. Contract teachers from the United Kingdom likewise signed two year contracts; and with a renewal rate that ran between 50% and 60%, they were providing little more stability to teaching staffs than were the volunteers. That the problem has continued or even been aggravated is revealed by the fact that the Secretary of the Kenya Teachers Service Commission reported to the Heads Association in February, 1971 that having gone to Britain to recruit one hundred teachers recently, he had returned with the names of only a few more than 20 teachers who had agreed to come to Kenya.

The extent of the problem, especially when particular imbalances by field are considered, is further revealed by a survey conducted by Dr. Indire with the cooperation of the Teachers Service Commission, the results of which were reported to the same meeting. The problem appeared to be most acute in science and mathematics. The survey revaled that in February, 1971 there were 1391 Maths and Science teachers in Kenya in 328 maintained and assisted schools (733 non-citizens and 658 citizens, or 47 percent Kenyans and 53 percent non-Kenyans). There were found to be 100 graduate teachers of Mathematics and Science in maintained and assisted schools of whom 28 were mathematics teachers and 72 science teachers. There were at the same time 556 non-graduate citizens teaching, including 130 mathematics teachers and 426 science teachers. There were 236 graduate non-citizens in these fields (55 in mathematics and 184 in science) and 103 non-graduate non-citizens (38 in mathematics and 65 in science) In addition to these teachers employed by the Teachers Service Commission there were 396 teachers in these fields employed under the Ministry, only 2 of whom were citizens. The latter 396 teachers were all graduates or graduate equivalents ("approved teachers"). As in January there had been 2296 arts teachers (citizens and non-citizens) in the maintained and aided schools, some idea of the balance prevailing can be gained. Thus while it is clear that Kenya is beginning to produce large numbers of secondary school teachers at the University, Kenya Science Teachers College and Kenyatta College, the imbalance between science and arts based teachers remains a very serious problem. Such

options as introducing an upgrading course for suitably selected K.S.T.C. teachers appears to require very serious atttention for, failing this, non-graduate teachers produced at K.S.T.C. will necessarily be asked to teach far beyond their own capacities.

The unbalanced impact of the heavy reliance on expatriates has resulted, in the first place, in the impermanence which has been referred to. Even in programs which provide reasonable pre-service orientation, the period of time required to become familiar with a new school system in an unfamiliar culture precludes effective teaching for part of the period of service. There is a second, and perhaps equally crucial, element which is often overlooked. Francis Cammaerts has pointed this out recently in an assessment of priorities in Kenya:

> The important and relevant fact about the need for a total change from the British model of education, to a Kenyan, or at any rate an East African model, is that this cannot be done by expatriate teachers. There are many excellent young men and women from overseas countries who are fully aware for the needs of change, but both by judgement and by length of service their contributions can be of only limited significance. Their judgement of what is needed is necessarily impaired by their own experience at home in a totally different situation, they can say 'this is all wrong', but they cannot stay long enough to be able to say 'this is what is right.' Indeed expatriate teacher innovators are more dangerous than those who do the best they can with the situation as they find it. The expatriate innovator is liable to introduce innovations which are totally foreign to the country, he is certain to create disturbances by his innovation, and he is very unlikely to be followed by any one who wishes or who knows how to continue the train of his innovations. To introduce new mathematics, or Nuffield Science for two years, leads to confusion, frustration, and often, a confirmation in the minds of conservative teachers, of whom there are many, that all innovation is bad.
>
> The necessary changes, the radical changes, can only come from Kenya itself, and from a stable and secure Kenyan secondary school staff. This is why the first priority must be the rapid Kenyanization of the teaching force. There are of course other very good reasons, the danger of dependence on foreign resources, the inequity of home and foreign salaries and standards of living, the difficulties of removing unsatisfactory 'foreign' staff, but these and many other arguments that may be advanced are insignificant compared with the need for change and the serious limitation of foreign teachers in effecting the necessary changes or even in identifying them.... (Francis Cammaerts, "Priorities in the Preparation of Secondary Teachers.")

Although Cammaerts' analysis may appear somewhat overstated in that sound schemes for simultaneous training of local teachers can be arranged (including even joint work with counterparts) and may minimize the ill-effects of the innovations which are first tried out by foreign teachers (especially in the somewhat more culture-neutral subject fields such as the physical sciences and mathematics), the fact remains that the institutionalization of innovation can only be accomplished by local staff committed to and prepared for innovation. Unfortunately, localization of staff may provide a necessary condition for institutionalizing sound educational change but it does not provide a sufficient condition to ensure that institutionalization of innovation will occur. This will depend in large part upon the quality of the program in teacher education which the local person undergoes, a program which must involve not only knowledge of potential innovations and skill in constructing curricula and employing teaching methods, but also a sufficient understanding of the process of engineering educational change to permit the introduction and consolidation of changes within a given school. Institutionalization of innovation will also depend on the quality of the supportive services (and the willingness to cooperate and provide necessary services) of the Kenya Institute of Education and the Inspectorate. What is started by teachers' colleges must, finally, be continued and expanded through inservice courses.

The heavy reliance which Kenya has placed upon expatriate teachers in the past is fortunately a declining phenomenon. It is also a phenomenon which the Kenya government, through the Teachers Service Commission, is able to control. Under the act creating the Commission, that body is empowered "to recruit and employ registered teachers, assign teachers employed by the Commission for service in any public school, to promote or transfer any such teacher, to terminate the employment of any such teacher." One effect of the creation of the Commission has been to ensure that Kenyanization will occur as rapidly as possible. Missions, for example, can no longer advertise for local staff without the approval of the Commission and indents for overseas teachers must also be filed with the Commission. Overseas teachers are no longer to be appointed on a permanent basis and the Commission has the power to deny a request for an expatriate teacher if a qualified Kenyan can be found for the position. All returning mission teachers are employed on local terms. The Commission's principal limitations in serving as an agency for localization of teaching are, therefore, the inadequacy of the information it appears to have had on the staffing in individual schools and the fact that the administrative apparatus for carrying out its wide range of responsibilities is still often ineffective.

Unfortunately there is reason to believe that the expatriate contribution to the quality of teaching is declining more rapidly than the number, or even the percentage, of expatriates in the teaching force would suggest. Whereas in the past the expatriate regularly came for a considerable period of time, the expatriate on contract today comes for a two year period and relatively few

expatriates choose to renew their contracts. As much of the first year of his teaching is of reduced effectiveness as he seeks to become familiar with the culture and the educational system, and too much of the second year is given over to preparing for the return home, the total contribution of the expatriate tends to be minimal. Moreover, expatriates coming to Kenya now are often seeking their first teaching experience; and such increments as they gain from that experience are repaid, in the long run, not to Kenya but to the educational system in their home country.

We have deliberately thus far discussed the contributions and costs of the expatriate teacher today not in terms of financial considerations but in terms of the quality of school programs. Almost as a footnote we might add, however, that the expatriate contract teacher is also a very expensive item. By comparison with a salary cost of approximately £1000 for a Kenyan graduate teacher under the new Ndegwe scales, the cost of an overseas contract teacher from the United Kingdom (out on a two year contract) could be reckoned at approximately the following rate:

£K2000	Basic salary (paid by Kenya)
1000	Overseas Addition (paid by Britain)
200	2 1/2 months leave
100	Overseas Addition
600	Passages
750	Gratuity

£K4,550 for two years = £K2,275 per annum.

Thus the cost of the graduate expatriate teacher remains at least double that of a local Kenyan graduate. We might add that the belief that the volunteer teacher comes free or nearly free of cost to the host country is usually a sad misconception.

A combination of professional and financial consideration thus combine to suggest that every effort be made both to recruit and train Kenyan teachers and, having trained them, to retain them in the profession. In the future we would hope that the resources which have heretofore been given over to securing large numbers of expatriate teachers will be transferred to securing expatriate teachers for certain very specific functions only. We would personally argue that the positions for which it is still most appropriate to recruit expatriates (or to seek persons from technical assistance agencies) would perhaps be (1) positions for certain specific posts in teacher education, (2) positions in technical education, especially at the post-secondary level, and (3) school positions in which the major share of the teaching is done at the post-School Certificate level. (It is hoped that the recommendation of the recent Ndegwa Commission, 1971, that posts in teacher training colleges be advertized will be implemented. If this is in fact done, the need for expatriate lecturers might be very considerably reduced; for it is generally agreed that suitable Kenyans are available for many of these posts but are currently teaching in secondary schools.) Even in shifting

to the employment of expatriates chiefly for specific and more highly specialized positions, Kenya and/or donor agencies are probably being needlessly wasteful by continuing the present two-year tour of duty. We believe that both teaching and living conditions in Kenya are such as to make it possible to recruit the desired specialists for a three year tour of duty. Before independence tours were for four years and conditions could not have changed drastically on attainment of political independence. Second and third contract tours could well be for two or three years and, where it became essential to offer special inducements to encourage certain specialists to renew their contracts, this should be regarded as a sound investment in human resources.

Projected Localization of the Secondary School Teaching Force in the Kenya Development Plan, 1970-1974

The Development Plan, 1970-1974, looks forward to a complete transformation of the ratio of expatriate to local teachers in secondary schools and teachers colleges during the Plan period. The targets in the Plan are sufficiently generous in terms of the production of teachers, in fact, that a "surplus" of planned secondary teachers would have been produced had enrolment targets in the new Plan been adhered to. We do not, however, consider this to be a genuine "surplus", even if enrolments fall back nearer target before the end of the period; for it is our judgment that projections of future supply of teachers should not ignore Harambee schools, schools which badly need improved staff and which constitute an important part of the Kenyan educational system. The Plan foresaw achieving a state in which the supply of local teachers would exceed demand in the aided system by (1) the very rapid production of Kenyan secondary school teachers (and, toward the end of the Period, teachers college tutors); (2) holding attrition from the teaching profession to approximately 4 percent per annum (a figure used in more general manpower projections late in the 1960s); and (3) introducing less generous or more demanding teacher:student or teacher:class ratios in the aided schools.

The relevant section of the Plan, and the official government projections, are shown here:

> During the Plan period, the programmed expansion of teacher training institutions will radically alleviate the severe shortages of teachers which have been experienced in the recent past. By 1974, there will be a surplus of qualified Kenyan secondary school teachers in excess of the needs of the maintained and assisted system. This surplus will find employment in the new extensive system of unaided Harambee schools and will thus contribute significantly to improvement in the quality of teaching provided in these institutions.

Table 25. DEVELOPMENT PLAN PROJECTIONS OF THE DEMAND AND SUPPLY FOR TEACHERS: SECONDARY SCHOOLS AND PRIMARY TEACHER TRAINING COLLEGES (MAINTAINED AND ASSISTED SCHOOLS)

	1969	1970	1971	1972	1973	1974
Demand						
Forms I-IV	2,494	2,640	2,748	2,842	2,916	2,964
Forms V-VI	285	327	369	411	453	495
Total	2,779	2,967	3,117	3,253	3,369	3,459
Teacher Training Colleges	186	210	245	245	245	250
Total Demand	2,965	3,177	3,327	3,498	3,614	3,709
Supply						
(a) Previous Year Minus 4 Percent	1,136	1,455	1,797	2,215	2,702	3,208
(b) Output from Teachers Training Institutions	380	417	510	600	640	670
(a+ b)	1,516	1,872	2,307	2,815	3,342	3,878
Deficit (-) or Surplus (+)	1,449	1,305	1,020	683	272	169

[1]The assumed number of teachers per class underlying the estimates declines annually as follows for lower secondary classes: 1.53;1.50; 1.45; 1.40; 1.35; 1.30; but is constant for upper secondary classes.

	1969	1970	1971	1972	1973	1974
Forms I-IV	1 53	1 50	1 45	1 40	1 35	1 30
Forms V-VI	1 50	1 50	1 50	1 50	1 50	1 50

[2]The initial teacher deficits (now made up by expatriate teachers) are shown to disappear over the Plan. However, it should be borne in mind that private and Harambee schools will draw a small but indeterminate number of teachers into their service, thus altering somewhat the total supply of teachers available to the maintained system.

Source: Kenya Development Plan, 1970-1974, p. 468.

The new Kenyan teachers are expected to come from a number of sources: academic teachers are to be produced by the University of Nairobi, Kenyatta College, and the Kenya Science Teachers College; agricultural teachers teachers are to be produced at Egerton College; technical teachers at Kenya Polytechnic, and commercial teachers at Kenyatta College. (The first class of 19 commercial students enrolled at Kenyatta College in 1970. Twenty-two S1 teachers to be produced at Kenya Science Teachers College in 1971 and 24 per year thereafter will be prepared to teach Industrial Arts as their principal teaching subject.) As it has for several years not been the policy of the Kenya government to grant scholarships for students

to prepare overseas to be teachers, it is these teachers plus a small number who may still enter the schools from Makerere who will constitute most of the qualified additions to the Kenyans now teaching in secondary schools and training colleges. The total output anticipated in the Plan, an output which would in effect mean an end to the need for expatriate teachers were it to be realized, is indicated by source in the Plan as follows:

Table 26. PLANNED PRODUCTION OF TEACHERS FOR SECONDARY SCHOOLS AND PRIMARY TEACHER TRAINING COLLEGES (KENYA DEVELOPMENT PLAN 1970-1974)

	1970	1971	1972	1973	1974
Kenyatta College	310	320	330	350	370
Kenya Science Teachers College	50	90	120	120	130
Egerton College	40	40	40	40	40
Sub-Total	400	450	490	510	540
University Graduates	110	150	150	160	160
Total	510	600	640	670	700

Source: Kenya Development Plan, 1970-1974, p. 469.

In order to judge the reasonableness of this projection, even if only in those terms which can be quite easily quantified, we must make some judgement as to the probability that teacher education can keep on schedule, as to the desirability of the proposed ratio of non-degree to degree teachers, and as to the likelihood that the preparation of teachers by teaching subject will correspond to the demands which are dictated by the type of school program or curriculum which Kenya hopes to develop. For purposes of analysis here, we are dividing programs for the preparation of teachers into those for the preparation of general academic teachers, teachers in the various vocational and pre-vocational fields, and tutors for the training colleges. In the final chapter of this report we shall attempt to analyse where, if anywhere, shortages are apt to persist. Here it will suffice to point out that known figures for teachers completing their course to date more than meet the stated targets. In 1970, the target figure was exceeded (even when Egerton College students are not included.) During and by the end of 1971 the following teachers will have been produced at each of the institutions mentioned:

Kenyatta College	350 teachers
Kenya Science Teachers College	119 teachers (of whom 21 industrial arts)
Egerton College	40 teachers (agriculture)
Universities	150 (approximate)

Of 403 candidates entered for the S1 (diploma) examination in 1970, 384 passed, 12 were referred, 3 are still pending (13 failed or withdrew). The very large majority of these (262 of whom 253 passed) were products of three-year S1 courses.

Even this expansion beyond target does not mean the situation is well in hand, however; for as Dr. Indire has pointed out, present

enrolment figures indicate that there will be great imbalances in the subjects taken by students preparing to be teachers. Of the approximately 150 university graduates, for example, the 42 supplied by Makerere University include only 1 mathematics teacher, 3 biology teachers, 3 chemistry teachers, and 2 physics teachers who were professionally trained as teachers. (Makerere also supplied the following untrained graduates: 1 in mathematics, 6 in biology, and 4 in chemistry. Of 21 postgraduates supplied by the university, 11 were in science or mathematics.) At the same time, Dar es Salaam supplied no trained graduate teachers for Kenya although it did supply 7 arts graduates and 4 untrained science graduates who sought teaching. The general picture which these figures would appear to present is even gloomier than they would suggest at first, however, for in many cases the numbers provided in the enumeration include students who are in fact taking two subjects and are thus counted twice. When this output is examined in light of the proposed rapid expansion of sixth form science classes, the problem becomes not only one of aggregate numbers of teachers produced at secondary teacher preparation institutions but what kind and level of teachers are being produced. We will deal with these and related matters in pages which follow and beyond.

Kenyan Programs for the Preparation of Academic Secondary School Teachers

Three institutions are preparing professionally qualified teachers in academic subjects for the secondary schools of Kenya: The Faculty of Education of the University of Nairobi; Kenyatta College, now a constituent college of the University of Nairobi; and the Kenya Science Teachers College. The nature and size of the potential contribution which each of these can make, the factors which might alter the size of this contribution, and the types of steps or external aid which might strengthen or extend this contribution are worthy of consideration, institution by institution.

1. The University of Nairobi. Beginning with the Kenya Development Plan, 1966-1970, the Kenyan Government ostensibly counted upon the University College (now the University of Nairobi) to make a large quantitative input to the staffing of secondary schools. The plan included a commitment to the idea that 50 percent of arts graduates and 30 percent of science graduates at Nairobi would be directed into teaching. With low attrition rates prevailing at the University College (especially in its teacher education program) and a bonding system which committed all students to three years of service to the government, this promised on the surface to provide a sizable number of graduate secondary school teachers rapidly. In fact, however, the government has chosen to rely on the voluntary choice of the graduate to enter the teaching profession rather than upon direct assignment to teaching. The actual percentage of graduates of the university who will end up as teachers thus will be determined largely by the need for high level manpower elsewhere in the government, or even in the economy at large. This demand elsewhere is apt to be met far more quickly in arts fields than in scientific and technical fields. The best cue as to the number of

graduates of the university who will end up as teachers is thus given by the percentage of the student body which opts for the B.A. or B.Sc. (Education) degrees at the undergraduate level or chooses to take the Post Graduate Diploma in Education at the post-degree level. The latter option is actively encouraged inasmuch as those pursuing this program are paid on the graduate teachers salary scale for the year they take the course. The probability that the University of Nairobi will introduce a M.Ed. degree in 1971 suggests that the quantitative contribution of the University to meeting professional needs in the school system will increase noticeably, but as persons securing this degree will be prepared to take posts in teachers colleges, in the administration, or in the Inspectorate, they are unlikely to teach in secondary schools. Similarly a proposed B.Ed. program at the University will be intended to produce teachers college tutors and cannot be looked to for additional secondary school teachers. These likely programs are discussed later in this section in connection with the preparation of tutors.

The Faculty of Education of the University of Nairobi (formerly the Department of Education in University College,Nairobi) is the only institution in the country which now prepares professionally qualified degree level teachers in academic fields. The rather limited size of its output to date and the distribution of this output by the teaching fields of students suggest serious imbalances may be developing in Kenya. The first of these imbalances is that between the output of graduate teachers and S1 (diplomate level) teachers. The second is that between the output of graduate science teachers and graduate arts teachers. While large outputs of diplomate teachers of apparently high quality (as discussed below in respect to Kenyatta College and Kenya Science Teachers College) make these imbalances less important than they otherwise would be, there is nonetheless cause for concern that the solid core of professionally trained graduates who should be available to provide leadership in developing secondary school programs will be late in coming. Past enrolment figures of the Department of Education (now the Faculty of Education) suggest the significant shortfall of graduate teachers which is likely to persist through 1975 unless new options are exercised in Kenya. These figures are presented in Table 27 below.

Table 27. DEGREE AND POST GRADUATE STUDENTS STUDYING EDUCATION IN THE UNIVERSITY OF NAIROBI (FORMERLY UNIVERSITY COLLEGE NAIROBI)

	1966/7	1967/8	1968/9	1969/70	1970/71*
First Year	0	0	52(0 Sci.)	77(0 Sci.)	136(0 Sci.)
Second Year	7(2 Sci.)	25(5 Sci.)	56(3 Sci.)	73(Sci.)	73(2 Sci.)
Third Year	0	7 (2 Sci.)	24(5 Sci.)	49(3 Sci.)	68(Sci.)
Post Graduate	19(9 Sci.)	32(11Sci.)	32(7 Sci.)	29(Sci.)	21(6 Sci.)

*Note: In 1970/71 the Department of Home Economics became part of the Faculty of Education. In 1970/71 the department had a total of 38 students of whom 24 were following the diplomate course the last year. Not all, however, become teachers.

Source: Faculty of Education statistics, 1970/71.

The two imbalances referred to on the previous page are significant enough that they deserve further comment. Although Kenya Science Teachers College can be counted upon to provide large numbers of science teachers who should prove very appropriate for the lower forms of secondary school, there is a genuine need that these be supplemented by graduate science teachers. (Graduate teachers would be required for Fifth and Sixth Form teaching, even if one assumed all lower form teaching could be handled by diplomate teachers. K.S.T.C. staff hold the view that only about 10 percent of their diplomates can teach beyond the level for which they are specifically prepared to teach.) Probably a wide range of factors converge to produce the unsatisfactory number of science students in graduate teaching programs. Mature entry students in Education, for example, have seldom received their education at times or by routes which permitted them to secure the prerequisites for science courses at the University. Moreover, science faculties in African universities (and indeed in universities elsewhere) believe that what they teach is so difficult and demands such a large proportion of the students' time and effort that little space can be given over in a program to permit students to study such a mundane subject as pedagogy. Cammaerts, in the same analysis from which many of the figures in the previous table were derived, attributes alternative employment opportunities, the fact that teachers' salaries are not competitive with other salaries science graduates might secure, and the shortage of science equipment in Kenyan secondary schools as other factors which have hitherto held down science enrolments in Education. The Ndegwa Commission has provided the highest starting point in the graduate teachers' scale to science trained graduates. It is hoped that this will attract a certain number of science students into teaching.

The imbalance as between degree level teachers and diplomate level teachers may prove less important if the quality of diploma courses (and students in such courses) is high. Unless new options discussed below are introduced, however, it must be recognized that localization of the teaching force in Kenyan secondary schools will (especially in light of expansion plans) be achieved largely by replacing expatriate graduate teachers with Kenyan diplomate teachers. Thus, in 1968/69 the production of Kenyan non-graduate secondary school teachers outstripped the production of graduate secondary school teachers in approximately the ratio of 8:1. This is a far cry from the ratio of 2:1 which was proposed as an acceptable target ratio for secondary schools by members in the professional branch of the Ministry of Education.* Even were the projected output of teacher preparation programs to follow that proposed in the new Kenya Development Plan, 1970-1974, the output of diplomates to graduate teachers in 1974 (the final year of the Plan period) would still be in the ratio of more than 3:1 while the ratio in the output for the total plan period (1970-1974) would of course be even higher. The Ministry of Education in Kenya takes the position that all secondary school teachers should be S 1 or "degree equivalent" teachers. The "approved S1 (diplomate) .....included in the degree classification." Fortunately the extent to which localization of the Civil Service has already been achieved suggests that an increasingly large percentage of the product of the University can be expected to turn to teaching, although the morale or professional performance of persons who turn to teaching as a last resort is not

*The Development Plan and official statements propose a ratio of one diplimate to two graduates!

apt to be all that is desired. An added impetus should have been achieved somewhat by salary scales proposed by the Ndegwa Commission. This remains to be seen.

There is a further problem in the production of graduate teachers which has existed at the University of Nairobi, however. This lies in the extremely meager portion of Education programs which has hitherto been given over to professional education. The Department of Education while a Department of the Faculty of Arts offered two distinct programs for the preparation of secondary school teachers. The first of these, the Post-Graduate Diploma in Education program, has amounted to a fourth year of study appended to a program which was otherwise purely an arts program or a science program. The post-graduate program is strictly in the British tradition and is, in the judgment of the first Dean of the Faculty of Education, quite inappropriate to the Kenyan situation. Addressing the ICET meeting in Abidjan in 1969, F.C.A. Cammaerts commented inter alia:

> The one year courses, while easier to run and to administer, are likely in the end, to prove of less value than the concurrent courses which introduce a basic conceptualization of the whole teaching process over a longer period of time and in the end force a proper partnership between educational studies and all other forms of study.
>
> The single year spent on teacher education is bound to concentrate on how to teach and the basic theories of Education. The concurrent course allows a continuous study of the philosophy of the subjects themselves, of their place in Kenyan schools, in other words, a study of what is to be taught and why it should be taught. The separation of teacher education from the main stream of study has always tended to produce neglect of these aspects of study.

Unfortunately, the degree program in Education which developed while Education operated as a department in the Faculty of Arts at University College, Nairobi was so restricted in size that it likewise could not ensure the kind of analysis and application which the above analysis implies to be desirable. Unlike the Bachelor of Education degree which had developed at Makerere University College, the program at University College permitted the "Education" student to take Education as a full subject only during the first year of a three year course, Education constituting only a small fraction of his program thereafter. Such limitations, were probably imposed in part by the requirements of science departments. Furthermore, as international professional organizations associated with teaching in Africa have themselves been Africanized it has been increasingly recognized that the course content in even degree courses in Education is often inappropriate because of the dearth of suitable materials which could be used to relate education to the surrounding culture. The decision of the Association for Teacher Education in Africa to develop a body of instructional

materials in the Foundations of Education may, in the future, serve to eliminate this particular weakness in existing programs. There remains, however, the danger that African teacher educators, educated abroad in situations which were appropriate to other cultures or other stages of educational development, may frame courses along lines which are inappropriate to the person who must go out into the African school and actually engineer educational change--perhaps the most difficult of all educational tasks. This is not to forget that teacher educators educated at African universities in colonial times are often the most ardent supporters of foreign university courses in their sometimes over-ambitious desire to maintain "standards".

Although the problem of developing a sound professional program without an overproliferation of professional courses faces the Faculty of Education of the University of Nairobi as it does most African Faculties of Education, it is the quantitative problem in teacher education which is most central to this report. Estimates have varied considerably as to the number of qualified degree teachers who might be expected from the University. The Development Plan 1970-1974 looks forward to an increase to 150 annually by 1973; Professor Cammaerts of the Faculty of Education estimated in 1969 that output would rise more quickly to approximately 300 per year by 1973. The recent study by the team from the American Association of Colleges for Teacher Education accepts the official Development Plan estimates. Our own judgment, based upon the perspective which a subsequent period of time allows, suggests the Projection 4 below, a projection which does not take into account the option of routing the best of the students from Kenyatta College and the Kenya Science Teachers College into a degree program, an option which would enable Kenya to adjust the balance between graduate and non-graduate teachers rapidly and which would face, principally, the financial constraint imposed by the much higher recurrent cost of the graduate teacher.

We strongly recommend, however, an upgrading degree course for suitably qualified S1 diplomates. The S1 teachers are persons who have already chosen to become teachers and any of their number who are upgraded are likely to return to teaching. This should help alleviate the acute shortage of science graduate teachers.

Projection 4. PROJECTED OUTPUT OF KENYAN GRADUATE TEACHERS*

Year Available to Teach	First Degree (Nairobi)	M. Ed. (Nairobi)	P.G.C.E. (Nairobi)	Other Universities
1971	70	0	20	45
1972	90	0	50	45
1973	175	10	45	30
1974	210	15	50	20
1975	255	15	50	20

* All estimates rounded to the nearest 5 graduates.

Neither the Ministry of Education nor the Faculty of Education is satisfied that the present output of graduate level secondary level teachers is sufficient to meet needs, particularly in science subjects. For this reason it appears highly likely that recourse will be made to Kenyatta College, now a constituent unit of the University, and/or to K S.T.C. to make a direct contribution to the production of graduate teachers, especially in the science fields. The use of an upgrading course, mentioned on the previous page, would be one means of accomplishing this; the possibility of introducing a B.Ed. course for secondary school teachers would be a second. Although the latter possibility should involve cooperation or joint work with the Faculty of the University and might involve either or both of the institutions now involved in preparing non-degree teachers, it can probably best be discussed in connection with Kenyatta College.

2. Kenyatta College. The second major institution engaged in the preparation of secondary school teachers in academic (and some non-academic) subjects is Kenyatta College. The college was opened in buildings which had formerly housed two British batallions and were handed over to the Kenya Government in 1965. Two distinct programs were launched at the College: the first, a secondary school program, originally included school certificate classes as well as higher school certificate classes.* It is planned that this program will be phased out during the period under consideration in this report. The second program as one in secondary teacher education, a program which brought under one roof S1 courses (diplomate level secondary teacher courses) which had hitherto been offered at two teachers colleges. Although much has been done to convert the original buildings to serve instructional purposes, there remains need for considerable capital improvement before the College can perform its functions optimally. Renovation and new building is promised by the new Development Plan.

The Teacher Education program, which is the program of concern in this report, includes three distinct courses preparing persons for secondary school teaching. (1) A three-year program in either science teacher education or arts teacher education is offered to students who have received their O-level General Certificate of Education or its equivalent. The course content in this program consists of approximately two-thirds academic courses and one-third professional courses or experiences. Each student must elect two principal subjects and one subsidiary subject, thereby producing candidates with enough teaching fields to permit the flexibility required to schedule them in terms of their competence in even small secondary schools. Physical education is compulsory throughout the course and Comparative Religion, required of all students during their second year, constitutes an interesting and worthwhile addition to a teacher education program in a multi-religious country. (2) A one-year program is offered to entrants possessing their A-level qualifications with one principal subject and two subsidiary subjects. For these students, the content of the course at the College is almost exclusively professional. (3) An additional one-year course is offered to upgrade teachers who possess their P1

*School Certificate classes have already been phased out.

qualification (that is, teachers who have had training as primary school teachers after having completed their secondary school education) to S1 teachers. This course is designed to meet the shortage of secondary school teachers in Art and Craft, Music, Swahili, Home Economics, Physical Education and Health Education. The teachers prepared are expected to take work and be able to teach in combinations of two subjects, as follows:

First Subject	Second Subject
Physical Education	Health Education
Home Economics	Biology
Art and Music	Craft
Religious Education	English or Swahili
Swahili	English

In 1970 a new three year program for commercial teachers was also introduced at the College. (The college also houses a small program for Teachers of the Deaf.)

In the initial years, Kenyatta College encountered numerous problems. The most serious of these, which arose from the necessity to admit students with relatively poor academic qualifications, has now come to an end. The increased output of secondary school certificate holders now makes it possible to select candidates with the desired level of academic credentials in the three-year course. The improved quality of entrants, when combined with the breadth of the program and the exposure of students to a professional atmosphere over a three year period, promises to provide a highly suitable teacher for the secondary schools. The one-year course, on the contrary, appears to attract less satisfactory material and must try to build professional commitment in a shorter period of time. It is, consequently, probably a less desirable option; and it fortunately now appears that the 70 A-level entrants in 1971 will be the last to pursue a one-year course.

The main problems of the College in the future promise to stem not from a lack of qualified entrants but from a lack of adequate physical facilities, especially laboratories, and the need for a strong, local staff which is committed to the institution over a period of time. The problem of staffing at the College has been serious. In June, 1968, for example, the College possessed 58 teachers of whom 42 possessed degrees. Of these, however, only 9 were local teachers of African origin. Moreover, the College was continuing to lose its staff as they were sought out for responsibility posts in schools or government. This meant that turnover was heavy not only among expatriates but among locals. Consequently a top priority item on any agenda for action with respect to Kenyan education should be creating the conditions which will ensure a high calibre of staff at Kenyatta College. This has certainly required three commitments: (1) Providing an establishment for the College with salary scales and promotion opportunities within the College sufficiently attractive to entice and hold excellent local teachers.

(2) Providing opportunities for Kenyans committed in advance to Kenyatta College to secure advanced degrees or qualifications, either in East Africa or overseas. (3) Providing expatriate personnel with professional qualifications to fill the gap while Kenyans are receiving such advanced training or education, preferably working on some type of paired basis with a Kenyan prior to and/or upon his return from such training. Because of the desirability of sharing professional knowledge and experience, it is highly important that Kenyatta College possess clear official links with the University of Nairobi. Now that Kenyatta College is a constituent part of the University of Nairobi, suitable arrangements should be made to **make the latter explicit and achieve all these goals**.

Although Kenyatta College has rendered and will continue to render valuable service to Kenyan education by producing S1 teachers, the growing imbalance between non-degree and degree teachers in Kenyan schools argues convincingly for using Kenyatta College as a major adjustment mechanism to keep teacher mix by level of qualification in reasonable balance. One plan which has been proposed calls for the selection after two years of college of those of its students best qualified to do so to go on for degrees at Kenyatta College, students at that point being routed into the final year of the S1 program or into the last two years of what would then be a four-year degree program. (Recent entrants to the College have expected that there would be a selection from their number of those qualified to pursue a degree. As no degree course has been approved for Kenyatta College, however, provision has been made for the best of such students to enter the B.A. and B.Sc. courses at the University, presumably usually with Education. The very considerable advantages of a professional degree program and the unique possibilities which such a program would offer for maintaining a reasonable balance between diplomate level teachers and graduate teachers make introducing a professional degree at Kenyatta College a highly attractive proposal in teacher education. (Unless or until better science laboratories become available to the Teacher Education Division at Kenyatta College, it would appear that K.S.T.C. might be a more suitable location for students on a professional degree program in which science subjects were their teaching fields.) With a growing number of applicants to Kenyatta College holding at least one Advanced level pass, it is desirable that this be the minimum entrance requirement for such a course. The first years, however, selected S1 diplomates would constitute suitable entrants to a professional degree program. Those possessing O-level qualifications, in our judgment, are ideal entrants for a 3-year S1 course, following which it would be possible to provide a 2-year upgrading course leading to the professional degree. Entrants to Kenyatta College with an A-level qualification might, alternatively, be screened after one year of work to determine which they should pursue a second year leading to the S1 qualification or a second and third year leading to the professional degree. Although we recognize that such a screening point could adversely affect the integrity of an S1 course, we do not believe that this would necessarily follow if the examination were designed to follow program rather than dictate program. The importance of introducing a sound professional

degree in Education without unnecessary delays seems to us critical, and we fully sympathize with the sense of urgency which the Ministry feels. At the same time, we must emphasize, we are not in favor of continuing a one-year S1 course following the A-level qualification, a course which we believe provides too little opportunity to develop professional commitment or competence. The more urgent problem is to provide the level of graduate teachers required by the schools.

Obviously, if the degrees granted are to have the quality Kenya should desire, the types of priorities proposed above will become doubly urgent. It would further be desirable that no invidious distinction in salary schedules be made between the graduates of a program at Kenyatta College, probably leading to a professional degree granted by the University of Nairobi, and the degrees with Education already offered at the latter institution.

Projection 5. PROJECTED OUTPUT OF DIPLOMATE TEACHERS FROM KENYATTA COLLEGE IF NO DEGREE COURSE IS INTRODUCED

Year Available	New S1 Teachers
1970	350
1971	415
1972	415
1973	345
1974	310
1975	400

Note: All estimates rounded off to the nearest 5 diplomate teachers. (Full time equivalents.) Some programs produce students in the Spring, some in December.

3. Kenya Science Teachers College. The third institution charged with the preparation of academic secondary school teachers is the Kenya Science Teachers College, an institution established as a cooperative educational effort by Kenya and Sweden. The

arrangement for establishing the College, generally recognized as one of the most successful educational assistance projects in Africa, provided that Sweden cover 90 percent of the capital costs for the college and 70 percent of the recurrent costs through 1971. Sweden will continue to provide a declining percentage of the costs through 1976, at which point Kenya will take over full financial responsibility for the institution. The college was created to meet the urgent need for science teachers in Kenyan secondary schools. Upsalla University assumed major responsibility in drawing up the program for the college and also in selecting the initial Swedish staff for the institution. (In 1969 this staff included 15 persons with their doctorate degrees, 8 with their bachelors degrees with Education, and 3 with their Civil Engineering or Higher Technician Certificates.) In view of plans to introduce an industrial arts program into Kenyan secondary schools, a program in industrial arts teacher education was added in 1969/70. An extensive counterpart and overseas education plan ostensibly will permit localizing the staff of the college according to the timetable presented in Table 28 below. This plan, however, is based upon the assumption that Kenya will in fact post its well trained science graduate teachers to this institution.

Table 28. INITIAL PLAN FOR KENYAN SUPPORT OF KSTC STAFF (PRESUMABLY KENYANS)

Period	Kenyan Supported Staff
1966-71	0
1971-72	4
1972-73	8
1973-74	12
1974-75	16
1975-76	20
1976 onwards	24-28 (42)*

*As intakes increased to 5 classes beginning in 1969-1970, and to 6 classes thereafter, the number of Kenyans who will be required to staff KSTC has increased by roughly 50 percent.

As the counterpart arrangement involved in the original and subsequent agreements between the Governments of Sweden and Kenya takes account of the problem of localisation and training of staff, the primary concern of this report with respect to K.S.T.C. lies with prospective output of the institution which should become available for the secondary schools.

As it has been possible for K.S.T.C. to attract a high quality of student and as the level of qualifications of the expatriate staff who have been placed at the College by Sweden has been high, it should be expected that a large percentage of the students will

succeed in the program. The aim of the academic studies in the course as stated by the director is as follows:

> The chief aim of this part of the course will be to ensure that the student has sufficient academic knowledge to teach two subjects up to Form IV level. The student will select two related subjects with the College's advice from among the subjects which the College offers and will study them to a level which will be equivalent to principal level in a G.C.E. Advanced Examination.

Academic courses are supplemented by professional courses in the principles and practice of education, methods of teaching, and school organization and management (the latter being an addition which is too often overlooked in professional programs in Africa.) As each student is expected to prepare in two teaching subjects, it is best to estimate output in terms of full time teaching equivalents. Our estimates, based upon proposed intakes under a revised plan and contract for the college (and allowing for somewhat less than the 20 percent attrition rate which occurred during the first class), would suggest that roughly the following number of new S1 teachers can be counted upon from K.S.T.C. Should the University of Nairobi begin to take qualified S1 teachers as entrants to fill its own Science programs or should a new degree option involving a shortened degree course from the S1 entry level be introduced in the Faculty of Education or at Kenyatta College, the output in terms of teachers would be respectively either reduced or delayed.

Projection 6. PROJECTED OUTPUT FROM KENYA SCIENCE TEACHERS COLLEGE (FULL TIME TEACHING EQUIVALENTS)

Year of Output	New S1 Teachers
1970	40
1971	119
1972	144
1973	144
1974	144
1975	168

There is, of course, the likelihood that the output of the home institutions for preparing secondary school teachers will be supplemented to a limited extent by the return of Kenyan graduates who have been studying abroad. It appears very unlikely that large numbers of such students will willingly go into secondary level teaching, although the contingent of Kenyan students abroad has been very large for some years. In 1968/69, for example, the Ministry was aware of some 3,600 students overseas (this did not include students who for one reason or another did not disclose their country of origin to host governments or to Kenyan High Commissions

or Embassies.) Of these, 1325 were in the United Kingdom, but many of this number were either high school students or Indians, many of the latter probably not intending to return to Kenya. At the same time 690 students were in the United States and 324 were in India. Although those students who had gone abroad on technical assistance scholarships are bonded to the government for three years, it has not been the practice of the Kenyan government in recent years to send undergraduate students abroad for preparation as teachers. It is therefore possible that the major quantitative contribution to the teaching force which students who are now abroad will make will be indirect, in that they will compete for other positions which local graduates and those at present teaching would otherwise be tempted to take. Some students pursuing advanced degrees will, however, be well qualified to make a contribution to the process of educating secondary teachers in Kenya; and it is likely that this will prove the most significant contribution of the overseas contingent to the Kenyan educational system during the years this report covers.

Kenyan Programs for the Preparation of Technical Teachers and Industrial Arts Teachers

In order to meet the demand for teachers generated by (1) the introduction of industrial arts courses into the general secondary schools, (2) the general policy favoring rapid Kenyanization of teaching staff, and (3) the expansion of programs in vocational and technical schools per se, Kenya has introduced major programs in pre-vocational (industrial arts) and technical teacher training. The program to prepare industrial arts teachers for the general secondary schools is offered at Kenya Science Teachers College, and that designed to prepare technical teachers is located at Kenya Polytechnic. As these programs serve very different purposes and as their products will be very different in nature, each program merits a brief description. The level of qualifications of persons admitted into the programs, the nature of the programs and hence of their output, and the size of the programs will all bear significantly upon the quantitative output which should be expected.

It appears certain that the program designed to produce Industrial Arts teachers will make its impact felt more quickly, and more certainly in the sense of meeting staffing needs, than will any program for the preparation of technical teachers. The Industrial Arts Teacher Training Program at K.S.T.C. is a 3-year program in which, after an orientation period in which students become familiar with the six subject fields offered at the College, each student elects with guidance the three fields (including industrial arts as one field in this case) which he is to be prepared to teach. By the conclusion of his course he should be able to teach in any of these fields to Form II level and in industrial arts and one science subject to Form IV level.* Regularly the industrial arts teacher will be qualified to teach in either (i) mathematics, physics, and industrial arts, or (ii) chemistry, biology and industrial arts. The principle underlying this breadth of training, as in other programs at K.S.T.C., is that a teacher qualified to teach a number

* As indicated earlier, K.S.T.C. teachers judge that many S1 teachers will not be fully qualified to teach beyond Form II.

of subjects is what is required for the relatively small schools which characterize much of Kenya. (It is also believed that industrial arts teachers qualified to teach in science and mathematics will be able to do much to dispel the disesteem in which non-academic subjects and teachers are often held in schools.) It is expected that most of the teachers proceeding through this program will, in fact, remain in the secondary schools; for although the type of training which the technical teachers is to receive will make him a valuable commodity to industry and thus subject to outside inducement, the level and type of training provided the industrial arts teacher is apt to make him more appealing to the schools than to industry.

Although ostensibly most Kenyan secondary schools will eventually offer industrial arts courses, such courses can be introduced only as both staff and facilities become available. The vocational education adviser in the Ministry estimated that by September, 1969 a total of 34 industrial arts teachers (almost all of whom would necessarily be expatriate) would be required to staff courses which facilities would permit. Now that the program at K.S.T.C. has come on stream, however, the shortage of industrial arts teachers should quickly vanish, especially should delays in building or equipping workshops continue to hold back the program as was true during the period of the first I.D.A. loan. It was initially estimated that at least 12 industrial arts teachers (6 full time teacher equivalents) would be available from K.S.T.C. by 1972. As intakes at the College have exceeded original plans, however, an output of 22 industrial arts teachers (11 full time teacher equivalents) will be available in 1971 and 24 in 1972 and 24 in 1973. Since these teachers will be well qualified to teach science and mathematics at the junior secondary school level, there is no possibility of overproduction even should industrial arts facilities in schools not be built or equipped according to schedule. At present there are facilities for only one class (24 students) in industrial arts. We would recommend that an additional class in industrial arts be opened immediately at K.S.T.C. and that the situation be reviewed in several years to see whether still further classes might not be called for. If programs in schools are to be genuinely diversified (and all the more if programs such as youth centers, village polytechnics, or the National Youth Service are also to have well-qualified teachers), the required output could perhaps even rise to as many as 120 full-time teaching equivalents per year. The priority which it appears technical studies, industrial arts, agriculture, and commercial and business studies should command is such that we have no hesitation in calling for greatly expanded programs in preparing teachers in these fields. Lacking teachers in sufficient numbers, there is little chance that prevocational and practical courses can make much impact on secondary level education.

It is in the preparation and retention of technical teachers, however, that one can anticipate the most serious difficulty and delays. The types of programs planned in Kenya anticipate a training period of at least five years duration. With technical teacher

training lagging behind other schemes of teacher education and an increasing number of students going through technical institutes and secondary technical schools, the length of the technical teacher education course should be reviewed to make sure that it is not unnecessarily long. One expedient worth considering, of course, is that of reserving a part of the practical industrial experience until after the first few years of teaching, a point at which the readiness of the teacher to interpret this experience in terms of the teaching situation might be greater. The problem in technical teacher education lies, moreover, in the fact that almost all technical teachers required would need to be able to teach their special subjects to Form IV level in the secondary school and a reasonable portion of them would need to be qualified to teach at the Higher School Certificate level or in Technicians' courses in the technical colleges. The size of prospective demand and potential supply of such teachers was summarized at the time data were originally gathered in the following comments and table.

> Just to replace the non-Kenyans currently teaching in the technical secondary schools and technical colleges would appear to require approaching 200 technical teachers...and the Ministry's recent estimate of the number of would-be technical teachers who should be admitted to a fairly lengthy 4 to 5 years training programme over the next few years is summarized below. The estimates presumably allow for some wastage during training, for replacement of expatriates, for normal retirements as well as for expansion, and will no doubt be improved as plans settle down and more information becomes available.

Table 29. ANTICIPATED INTAKE OF TECHNICAL TEACHER TRAINEES TO MEET ESTIMATED DEMAND

Subject Category	Average Annual Intake to Training	
	1969, 1970, 1971	1972, 1973, 1974
Motor Vehicle and Plant Mechanics	6	5
Electrical Engineering	4	3
Building, Masonry, Painting	13	11
Carpentry and Technical Art	21	19
Plumbing	1	1
Commerce	16	12
All Subjects	61	51

*All 12 of intake in 1968 are expected to complete their course at the end of 1971. All of these are sponsored by the Teachers Service Commission. The apparent brevity of the course is explained by the fact that 3 of these were senior teachers before entering the program and the remaining 9 were expected to have completed their City and Guilds examinations in their respective technologies by December, 1970. Entering enrolments the following year, however, lagged far behind schedule, as one can easily determine by comparing the figures below for 1969 with those anticipated in the table above.

Entrants in:	1968	1969
Motor Vehicle Technicians Course	2	3
Mechanical Eng. Technicians Course	4	12
Electrical Eng. Technicians Course	3	6
Building (Ord. Dipl. or Higher Cert.)	2	12
Mechanical Eng. (Higher Dipl.)	1	0
Totals	12	33

Given no wastage during training, this arrangement would have put 459 technical teachers in the field over the period 1973 to 1978 and there is little doubt that were it possible to attract this number of entrants, there would be teaching places for them. It is already clear, however, that wastage is high and that targets will not be reached unless new steps are taken. Of 44 students given bursaries who were enrolled in 1969, 10 were dropped as unfit for technical teacher training and 2 others defected to industry. The 1969 class, therefore, consists of 33 students as shown in the figures given above.

The higher the level of technical teacher education given, of course, the more difficult the problem of technical teacher education becomes; for not only are the requisite admission standards higher, and the period of training longer, but the chance of loss to industry is greater. This has already revealed itself in the staffing of Kenya Polytechnic, an institution which in April, 1969, had only 6 Kenyans of African decent (and 4 Kenyans of Asian origin) on a staff which included 114 lecturers.

The imaginative and flexible program for training technical teachers which has since been launched by the Ministry of Education would, it had been hoped, eventually provide technical teachers not only for the technical secondary schools and institutes but for the Polytechnic itself. The scheme, in broad outline, has been as follows:

1. Selection for technical teacher training (after Form 4 or G2 with good passes in mathematics, physics, and English).

2. A first year involving an induction course plus training at the National Industrial and Vocational Training Centre and the Kenya Polytechnic.

3. A second and third year including industrial training, technical training at the Kenya Polytechnic, and Introductory Teacher Training at the Kenya Institute of Education. (As of December, 1970, this had not been started as there was no one to handle technical teacher training.)

4. A fourth year of training involving attachment in industry and further teacher education.

5. A fifth year involving concentration on teacher education, including teaching practice.

By reducing the period of industrial experience to six months and redistributing teacher education and teaching practice, those responsible for the program managed to reduce the total number of years for the first group (which is now scheduled to finish its training in December, 1971) from 5 to 4 years.

As students entering upon this program are supported by generous bursaries (amounting to K£250 for the first 1 1/2 years, 80 percent of a Senior Technical Assistant's salary for the next 1 1/2 years, and 80 percent of a Technical Instructor's salary for the last two years), retention of students during the program should be high. The chief danger point originally, it appeared, would come at the end of the program, where it remains uncertain whether either the security of government employment or the enforcement procedures with respect to the bonding of trainees will prove to keep those who have been trained in the teaching profession. Special scales have been created, however, to retain teachers who are faced with the enticements of industry. The scales, which have been recently increased, are as follows:

Table 30. SALARY SCALES FOR KENYAN SECONDARY TECHNICAL TEACHERS

	Former Scales	Ndegwa Scales
Senior Asst. Technical Instructor	K£378 - £756	-
Technical Instructor	£684 - £1119	-
Senior Technical Instructor	£1155 - £1239	-
Technical Master	£810 - £1446	-
Asst. Lecturer Grade II	£810 - £1302	£858 - £1146
Asst. Lecturer Grade I	£1158 - £1446	£1194 - £1482
Lecturer	£1497 - £1710	£1542 - £1902
Senior Lecturer	£1839 - £1989	£1962 - £2250
Principal Lecturer		£2322 - £2574

Source: Report of the Commission of Inquiry, 1970-71, p. 190.

Their effectiveness over time remains to be measured.

Meanwhile although the local program for training technical teachers promises eventually to produce most of the teachers who will be needed, initial intakes were disappointingly small and the present 5-year program necessarily means that few if any technical teachers being trained locally can be available during the period under consideration in this report. Thus the estimates made in 1968 and reported above are clearly too optimistic.

The program was actually launched in 1968 with 12 students who came either directly from technical secondary schools or who decided to come back into teaching from industry. The intake the second year grew to 44 (compared with an anticipated 50), 7 of these coming from industry. Following an induction period, however, this number

had fallen to 33, the remainder either having failed their school certificate examination or having failed to meet standards during the induction course. Attrition at these rates merely reinforces our judgement that few teachers can be expected before 1975, especially as the trainees will be expected to meet the standards of the Engineering Department before proceeding to teacher training per se. Any staffing of technical courses, consequently, will likely have to be by expatriates or by Kenyans who lack the desired qualifications. It is always possible that qualified technicians could be given a crash training program to prepare them for teaching, but the general shortage of qualified technicians and the competitive attractions of industry make this seem a remote possibility at present. Despite these problems and uncertainties facing technical teacher education, provision of a core of technical teacher educators for the Polytechnic program which has been instituted seems one necessary high risk contribution which only outside donors can make. While such teacher educators will be crucial to localisation of secondary level technical teaching, continued provision of positions in overseas universities to prepare technical teacher educators should be concurrent and considered of equal importance. Without these contributions there will be a continuing need for technical teachers well beyond the present decade.

The Kenyan Program for the Preparation of Agricultural Teachers for Secondary Schools and Teachers Colleges

The nature of the program and the size of enrolments in agricultural teacher education inevitably rest upon some conception of what the role of the secondary school in respect to agriculture should be. The Report of the Agricultural Education Commission (The Weir Commission Report) recommended in 1967 that agriculture be introduced as a course in all rural secondary schools. As there were by 1970 over 200 secondary schools which could be classified as rural, compliance with this recommendation would require a very considerable number of teachers. In actual practice, however, the fact that agricultural classes are opened in aided Kenyan secondary schools only as agricultural workshops become available has meant that it has been possible to harmonize the production of teachers with the opening of classes to a remarkable degree. Agriculture is, in short, to be introduced on a planned basis rather than on a crash basis. Initial workshops were constructed under an International Development Association loan, and some 20 schools possessed agricultural workshops by 1970. If construction remains on target, agriculture would be introduced in an additional 25 schools each year thereafter, and it is the task of Egerton College to produce the teachers for these classes. In 1971 Agricultural Education is being taught in 43 secondary schools, a figure which represents growth which is remarkably close to target. Agricultural teachers would also ostensibly be required for teachers colleges were the further Weir Commission recommendation that each college have a qualified agricultural teacher to be implemented.

Attempts to introduce agriculture in secondary schools have not been noted for their success in Africa. The purposes which it is hoped will be achieved in Kenya, and in light of which the program at Egerton College has been partially fashioned, were enumerated by the first Head of the Department of Education at the College as follows:

> Perhaps the most important factor will be the development of positive attitudes toward choosing agriculture as a career. Since only a small fraction of the population go beyond secondary school, the teaching of basic principles and practices of agriculture at this level should exert considerable impact in at least two important areas: (1) it provides a group of youth with basic knowledge and understanding so that they can perform useful service as actual farmers, in agribusiness, or as government field staff; and (2) the incorporation of agriculture in the curriculum of secondary schools signifies and gives status to this important area in the eyes of the general public. Hopefully this will bring about wide-spread positive attitudes and greater receptivity toward adopting modern farming methods.

Other more traditional "academic" outcomes may result if the program proves successful in its initial years, for there seems to be evidence that far more transfer of learning from agriculture classes to academic science classes occurs than transfer in the other direction (i.e., from academic science classes to agriculture), a finding which if true must lead one to question the frequent assumption that academic science courses will prove a panacea for modernizing rural Africa.

The close meshing of the agricultural teacher education program at Egerton with the proposed opening of agricultural classes in the secondary schools would appear to mean that no expatriate secondary level agricultural teachers will be required in the future. In fact, were the facilities of Egerton to be used on a more economic basis than has hitherto been the case, Kenya would be in a position to train a considerable number of agricultural teachers for other African countries. The preparation of a number of Kenyan teacher educators in agriculture at American universities should, furthermore, mean that there will be no further need for expatriate teacher educators at Egerton College.

The teacher education program at Egerton, which leads to the awarding of a diploma in Agricultural Education as well as to the granting of the S1 Teachers Certificate, consists of three years of work in technical agriculture and educational principles and methodology. As pedagogical courses and supervised school practice occur during what would otherwise be between-term vacations, teachers in training receive in effect almost four school years of formal preparation in a three year period. As organized, the course in agricultural education is sufficiently intensive to prepare the teacher not only to handle agriculture in secondary schools but to teach secondary school science as well. Agriculture teachers thus promise to join KSTC and Kenyatta College teachers in providing most science teaching to school certificate level in the near future.

In many ways, the program in Agricultural Education at Egerton appears to be one of the most positive developments on the African educational scene. In addition to academic work which should qualify the agriculture teacher to handle science in a way is meaningful in an African rural environment, the program prepares teachers to engage in extension work, thereby potentially enabling them to provide services through the secondary school to the surrounding community. To this are added the advantages of (a) one of the first courses which in part attempts to relate education directly to nation-building and economic development and (b) the use of the full calendar year to accelerate programs, avoid needless expenditure, and maximize the use of technical agricultural staff.

Nonetheless it is not clear that agricultural education will achieve the measure of success in Kenya which it deserves and which the Kenyan rural scene would appear to require. There are several reasons for this, reasons which argue for recommendations we feel constrained to make.

1. Although Kenya is planning the introduction of agriculture in rural secondary schools on a basis which is phased to allow for the production of agricultural teachers and the opening of agricultural workshops, the rate of introduction promises to be rapid and it is not clear that the research on how to make instruction effective can or will be carried out. It is also not clear that there will be an opportunity for teachers to observe and profit from truly exceptional programs in the field. In short, there appears to be a need for several excellent demonstration programs in secondary agriculture, programs which involve not only classroom instruction but which reveal how the facilities and resources of a rural secondary school can be used to improve the quality of life and the agricultural productivity of a rural community. Helping establish and evaluate such programs might be one way in which further outside aid could contribute to agricultural education in Kenya, although it would be important that any such aid not involve extensive inputs of capital equipment which could not be duplicated in other rural schools.

2. With long-established attitudes toward what constitute "respectable subjects" still dominating the thinking of not only schoolmen but parents and students, the mere preparation of well-educated agricultural teachers and the exhortations of national leaders are apt to prove insufficient to make agricultural education a significant option in school programs. Not only must agricultural teachers be convinced of its value, but other teachers and school administrators must be convinced of that value, understand the relationship of agriculture to the remainder of the school program, and recognize the requirements for its effective teaching. It would thus appear important that Egerton College be used during part of the time when its facilities are not otherwise in use for seminars which would help administrators and non-agricultural teachers understand the place of agriculture in the school and the potential role of agriculture in bringing the rural school and its community closer together. Other agricultural institutions could also be used for this purpose.

3. It will be difficult to develop and maintain morale and spirit among new agriculture teachers in schools where agriculture has not existed as a school subject or has not enjoyed high prestige. The task of the agriculture teacher, if he is to accept responsibilities not only to teach courses to students but work with the surrounding community, perhaps often through evening or afternoon classes, will require special recognition of the latter duties. It is important to recognize that the agricultural teachers trained at Egerton will possess not only their S1 qualifications but a Diploma from Egerton, and any indication that the agricultural teacher in a secondary school is at the bottom of the heap in secondary school teaching could lead to a self-accelerating process of attrition. It is thus important both that salary recognition be given for teaching requirements that go beyond the ordinary school week or school year and that promotion channels be in fact as open to agriculture teachers as to other teachers in the school system. A bad precedent in respect to potential attrition may have been developed inasmuch as the first trainees selected for Egerton were trained on a crash basis (after having received their Diploma in Agriculture) and were not volunteers but were merely directed to follow this course. The Ministry of Agriculture further retains the option (which will likely be exercised) of recalling these early trainees later for positions in its own establishment.

An agricultural program in any two-stream rural secondary school will, when the program is fully developed, require two agricultural teachers, although these teachers may not be teaching only agriculture. While this would suggest that a possible deficit in teachers could result by 1973 or 1974 should attrition following the three year bonding period prove high, the possibility that the pace of introducing workshops will prove somewhat slower than is currently planned makes this less likely than would appear on the surface. There is, in any event, the very real option open of increasing the enrolment at Egerton to bring the use of that college more nearly into line with its true capacity; and the recent experience of Kenya in phasing the preparation of agriculture teachers to conform with the opening of programs in schools suggests that such planning will not be beyond the capacity of the Ministry in the future. We have attempted in the Projection below to approximate the probable output of agricultural teachers for secondary schools and training colleges, an output which should be sufficient to meet the needs of all but experimental or pilot programs.

Projection 7.

PROJECTED OUTPUT OF AGRICULTURE TEACHERS FOR SECONDARY SCHOOLS AND TEACHERS COLLEGES

Year	Output
1970	40
1971	40
1972	40
1973	40
1974	60
1975	60

Kenyan Programs for the Preparation of Other Practical Arts Teachers

Two further programs for the preparation of teachers of practical subjects deserve special note inasmuch as they are essential for diversification of secondary education to meet the needs of a large number of students, needs which include the vocational needs of girls. The first of these is the program to prepare persons in home or domestic science (the term Home Economics is reserved for university level courses in Kenya); the second is the program to prepare business education teachers.

There is a considerable and growing need to prepare well-qualified persons to teach home science in both the formal schools and in the non-formal educational institutions in Kenya. In the aided school system, over which the government naturally can exercise most control, home science is compulsory for girls during the first two years; and wherever the facilities and teachers are available it is expected that the subject will be offered to school certificate level. By 1968 some 35 schools already took home science to that level, serving in all some 1215 girls. Many of the schools in which the subject was being offered had been equipped under the I.D.A. loan, and it can be anticipated that the number of schools offering the subject in Forms III and IV of aided schools will increase rapidly. By 1968, also, a good number of schools already offered two streams of home science, and as the normal class size in home science is regularly only half the class size of 35 to 40 in academic subjects, at least 2 home science teachers are required for double stream schools. With an increasing number of schools offering programs reaching to school certificate level, moreover, Kenya approved the offering of home science at Higher School Certificate or A-level for the first time in 1970/1971. Home science is also understandably a subject of interest in the Harambee Schools, few if any of which had been able to offer the course beyond Forms I and II by 1969 (the last year for which we have seen a reasonable survey). In general, Government has been encouraging the Harambee Schools to introduce the subject; but until aided teaching posts are provided, this encouragement can go little beyond inspection and advisement. In some instances, it would appear, help has been provided to the Harambee Schools in locating home science teachers. Unfortunately the shortage of equipment and teachers which has existed meant that even as late as 1969 some of the Teachers Colleges were finding themselves unable to offer the course for primary teachers in training. This situation may still prevail.

The programs in the formal schools are supplemented by programs in other types of institutions, but it is not clear that a sufficient number of these non-school programs exist to serve the girls who do not go on to secondary school or Teachers College. Among the programs currently operating are several Homecraft Training Centres operated by the Department of Community Development and the Ministry of Cooperatives and Social Services. Some of these centres enjoy an excellent reputation. They run courses of about six months duration and their products are eagerly sought after by the Maendeleo

ya Wanawake (Women's Progress) Clubs; others who complete courses in the centres work in nursery schools. Farmers Training Centres also run courses in home science, and here a particular agricultural emphasis is given to the program. Finally, the YWCA has consolidated its home science training at a Vocational Training School situated at Limuni, near Nairobi, where it prepares young women who will go out as housekeepers, caterers, and matrons. Above these institutions, which take in many students at the Certificate of Primary Education (C.P.E.) level, are three other programs which deserve brief mention here. Karen College of Home Economics, a school which originally took in students following their C.P.E., now offers a two-year program in home science for students who possess their G.C.E. O-level qualifications. Similarly, the Catering Department of the Kenya Polytechnic offers a two-year full-time program for entrants holding school certificates or O-level qualifications. Finally, the Department of Home Economics at the University of Nairobi, now a department within the Faculty of Education, offers a degree program in Home Economics. It is from the output of this latter program that much of the leadership in home science teaching in Kenya must be expected in the future.

The preparation of teachers to handle home science in the secondary schools is a joint responsibility of Kenyatta College and of the University of Nairobi. The course at Kenyatta College, which leads to the S 1 qualification and which now includes a one-year upgrading course from a P 1 to an S 1 qualification, has hitherto produced the largest number of home science teachers. It should be possible to anticipate a further output of at least 20 such teachers a year from Kenyatta College. It is the position of both the Ministry and the University, however, that the most urgent need in this field at present is to increase the percentage of home science teachers who hold a degree. The introduction of higher school certificate work in home science will both provide an opportunity for larger and more welcome university intakes and a demand for more and better educated home science teachers. With Home Economics a department within the Faculty of Education at the University, and with all students in the department receiving training as teachers, a not inconsiderable output of degree level home science teachers should be forthcoming during the last half of this decade. In the meantime, however, it is clear that secondary schools and teachers colleges will necessarily rely on S 1 teachers to handle courses. Our best estimate is that it will be impossible to enroll more than a dozen students per year in the degree course at the University before 1974. Present enrollments at the University reveal the still limited size of the program.

Table 31. HOME ECONOMICS STUDENTS AT THE UNIVERSITY OF NAIROBI, 1970/1971

22 students on the Diplomate course (final group)
3 students on their third year of course with nutrition bias (old course)
4 students on their second year of B.Sc. course (new course)
8 students on their first year of B.Sc. course (new course)

These enrollments suggest an output of over 30 university educated persons prepared to enter the secondary school, to serve in the Teachers Colleges, or to go on for advanced work during the period under consideration in this report. With the annual anticipated output of 20 students from Kenyatta College, it is clear that the major external assistance needs in respect to personnel in this field will be the provision of opportunities for carefully selected Kenyans to pursue advanced work overseas and the provision of teacher educators in Home Economics for the University of Nairobi and possibly for Kenyatta College while lecturers go abroad for such advanced degrees or work.

The program for the preparation of business education teachers has been late in starting in Kenya. The Ministry of Education is keenly aware of the importance of business education, not only as a vocational field but as an integral part of general education. The rationale for introducing business education has been well stated in a recent memorandum of the Inspectorate as follows:

> All people, whatever their vocation, have to carry on business activities in their normal daily life. As many of them have to leave school early, it would be well for them to have at least an elementary knowledge of how business is carried on. As a nation develops and standards of living rise, people become more interdependent. They rely on the exchange of goods and services supplied by others to satisfy their growing wants. They should know about the services that the government provides for the safety, welfare and development of its people, and how they all must contribute to this common good through taxation. They should know how to manage their own business affairs--to budget, to buy, to save, to insure against loss. So the subject "commerce" has a legitimate place in the general background of education required by all, and should be taught to as many students as possible in the first two years of secondary school.
>
> Besides providing practical knowledge, it would serve as an exploratory course in the field of business. It would also form a background for further business studies which could be carried on in the higher forms for examination credit.

The exact nature of the curriculum which should be offered is still under review, but the tentative guidelines for a large school which are presented in Appendix I to this report are suggestive of the types of preparation for business education which teachers will require. The relevance of a sound program in the aided schools, especially for girls, is increased by the narrowness of the preparation provided by many of the private business colleges. As the memorandum referred to above states:

> In each Stream, it was planned that the students would not only have a good academic education but would also have a practical education to relate to life. If the student were forced to drop out of school, she would be provided with either a saleable skill or the basis on which she could carry on in vocational training through correspondence courses, or day-release courses. Those are less expensive and, therefore, more possible for many. One of the sad features about the present situation is that the students, who are offered single subjects by some business colleges, have no background for the work. The little skill that they acquire this way is useless to them or to an employer.

Although the program presented in Appendix I may be overly demanding in terms of the number of periods suggested, it appears that a pattern approximating that suggested will be introduced with increasing frequency in the schools.

In order to provide teachers for business education courses, a crash program was introduced at Kenyatta College in 1970. This program, which had an initial intake of 18 students, promises to turn out the first 15 or 16 business education teachers produced in Kenya in December, 1971. A second crash program, also of 18 months duration, will produce approximately the same number of students in December, 1972. At the same time, business education courses have been incorporated in the regular S 1 teachers' program at Kenyatta College. The students in the regular program take three subjects their first year, of which one may be in business education. As there are 30 students in each of the classes, output from the college might include as many as 90 teachers qualified to teach one business education subject by 1974. We would thus anticipate an output of approximately 15 teachers in 1971, a similar number in 1972, and an expanded output of between 80 and 90 teachers capable of handling one business education subject by 1974. These estimates are included in our final projections which conclude this section and appear in the next.

The Kenyan Program for the Preparation of Teachers College Tutors

Kenya is one of the first of the African countries to recognize by adequate salaries the specialized nature of the work of the teacher educator. The new salary scales, recommended by the Ndegwa Commission and already accepted by Government, provide such generous recognition to teacher educators that they promise to attract very well qualified persons into this field. Thus it is possible for Kenya to localize the staffs of teachers colleges by planning for both an undergraduate (B.Ed.) degree program to prepare tutors and an M.Ed. program to prepare persons for senior posts in colleges. In general, the Kenyan program for the production of teacher educators is based upon two principles: (1) tutors should preferably be educated in East Africa rather than overseas, and (2) prospective tutors should be selected from those who have had previous experience teaching in primary

schools. The availability of persons qualified and anxious to follow such programs is revealed by the fact that of the 149 first year B.A. (Education) students admitted to the University of Nairobi for the 1970/71 academic year, over 40 experienced teachers indicated they would have preferred following a B. Ed. program for teach educators had such a program been in existence. Similarly, well over 100 students of the incoming class at the University of Nairobi in 1971/72 have applied for a program leading to a B. Ed. degree, should such a program be introduced; and it is clear a large proportion of these would, in addition to their strong academic qualifications, possess the experience which should precede a B. Ed. program.

The more advanced program, the M. Ed., is almost certain to be introduced at the University of Nairobi, it is to be hoped during the 1971/72 academic year. As initially proposed, this program would be designed to prepare students to take up senior posts in teachers colleges, in the Inspectorate, in curriculum development, or even in the University itself. Limited to a relative small number of experienced teachers--probably between 12 and 15 a year--who possess at least three years of teaching experience and have had previous studies in Education, such a course will likely be comparable to other Masters degree courses at the University of Nairobi in that it will be of approximately 18 months' duration and will involve course work in addition to a thesis. The course will likely involve both theory and practice, including a period of several months of practical work in suitable institutions and some four terms of course work at the University itself. An option, along some such lines appears certain to be accepted by the University, and the projections which we have made at the end of this report allow for such an option being put into effect.

The date of introduction and the physical location of a B. Ed. program for teacher educators are less certain matters. The decision of the Ministry to abandon an earlier plan to introduce an Associateship course (for which large numbers of applicants had already come forward) in favor of a B. Ed. course for teacher educators suggests that the latter course will eventually be introduced, using either the facilities of the University of Nairobi directly or the facilities of Kenyatta College. It is to be hoped and expected that in selecting and admitting students for such a course, whether it is offered by the Faculty of Education of the University or by Kenyatta College, the principle of requiring several years of teaching experience prior to admission to the course will be adhered to but that adequate consideration will be given to teachers who appear to have the academic potential to pursue such a course even though they have not had the opportunity to secure a Higher School Certificate. Preliminary planning for the B. Ed. suggests that students will ordinarily be expected to gain both a background in all the major fields of professional education (including Educational Foundations, Educational Psychology, Curriculum and Educational Communications and Technology) and to come out with a concentration in two main professional fields. This should permit efficient use of their services in the Teachers Colleges.

The introduction of a B. Ed. course, whether offered by the Faculty of Education at the University or at Kenyatta College will require further staffing; and it is urgent that whichever institution offers the course receive additional help in the form of highly qualified teacher educators should this program be introduced. Provision of such teacher educators, if requested, would appear to merit very high priority from external donor agencies; for we cannot commend highly enough the commitment of Kenya to provide for the staffing of its Teachers Colleges with truly well-qualified tutors and specialists. Provision of such teacher educators should probably be accompanied by the offer of counter-part training or experiences for prospective Kenyan teacher educators in outstanding teacher education programs.

Major Factors in the Recruitment and Retention of Teachers

Among the most important problems to be considered in respect to the staffing of secondary level institutions are those which relate to the quality of staffing in individual schools. The effective use of teaching resources in any country involves at least the following considerations:

(1) that staff qualifications be sufficiently diversified (by level and teaching field) so that the program which the school wishes to offer can in fact be offered;
(2) that individual schools have a sufficient number of qualified and experienced graduate teachers to provide leadership in developing the various facets of the school program;
(3) that the institutions or authorities responsible for distributing staff throughout the country are able to provide teachers in accordance with the professional needs of schools rather than by reason of political considerations which are allowed to outweigh these needs;
(4) that staff turnover in individual schools be held to a minimum;
(5) that the teachers who are employed are satisfied with their lot as members of the teaching profession, feeling that they are as well treated as other members of the public service; and
(6) that the cost of staffing schools not be so prohibitive as to endanger the economic foundations upon which the entire education system rests.

In order to assess the situation in Kenya with respect to many of these considerations, Dr. Indire visited some fifty secondary schools during the school year 1968-1969, of which five were Harambee schools. He also visited seven Teacher Training Colleges. The data which he gathered give some indication as to the extent to which such factors as teacher attrition and teacher morale were affecting the quality of Kenyan education and the extent to which a lack of qualified staff was holding back the development of sound school programs.

On the surface, one of the most encouraging signs found was that relatively few schools reported that what are usually considered the central academic courses in the curriculum were not being offered because the school lacked staff qualified to teach these courses. (One may, of course, question whether what are ordinarily considered the basic academic courses are in fact the most important courses in the school program in a developing country, or in any country.) In the schools in the sample visited, however, shortages of teaching staff for other courses did reveal themselves. The most serious shortfall in teachers (in quantitative terms at least) was in Kiswahili: 14 schools reported they were unable to offer instruction in the language because they lacked qualified teachers to do so. This particular shortfall is the more serious because, to date, no graduate program in Kiswahili exists in Kenya. (An S 1 program to prepare Kiswahili teachers is offered at Kenyatta College.) Four schools reported they lacked teachers to offer Domestic Science. (In this field, instruction up to degree level in Home Economics is offered at the University of Nairobi has in the past been poorly coordinated with the program in Education at the University, but transfer of this program to the Faculty of Education should remedy this shortoming.) Three schools reported they were not offering French because they lacked a teacher in this subject; three schools reported they were unable to offer music for the same reason; and three other schools reported they could offer physical education only because they relied upon sub-standard or unqualified teachers to handle the subject. More fortunately, only in a few instances did schools report they could not offer the sciences, agriculture, art, or commercial subjects because they lacked qualified staff. At the same time it must be recognized that schools are not offering as genuinely diversified or comprehensive a curriculum as is considered desirable by the Ministry of Education. Were offering a genuinely diversified or comprehensive curriculum seriously being pursued as a goal by school administrators, no doubt many more shortfalls in specific subjects would have been noted. The survey Dr. Indire did conduct, however, was sufficiently broad to suggest that a careful nationwide survey, school by school and subject by subject, of what types and numbers teachers are actually required, in order to offer a curriculum which school facilities would allow is badly needed if assignment of teachers by the Teachers Service Commission is going to take realistic account of teaching needs.

It is clear that the only reason it has been possible to offer the range of courses at present available is that teachers with less than degree qualifications are teaching most courses in many schools. To the extent that this is a professionally acceptable development,

the credit belongs to Kenyatta College and to the Kenya Science Teachers College, colleges which have between them taken on the task of preparing non-degree teachers for secondary schools. There is wide disagreement in Kenya as to how "rich" a mix of graduates in the secondary schools should be, although some official estimates suggest that the target should be as high as 2 graduates for each non-graduate. If this target "mix" is accepted as reasonable, the problem of a growing disproportion between graduates and non-graduates already prevails in individual aided schools. Unusually low percentages of graduate teachers are available in the Harambee schools which were visited, perhaps largely because of the financial difficulties or uncertainties which these schools face. If or when individual Harambee schools are taken over or are assisted in part, the proportion of S 1 teachers on their staffs might logically be expected to rise; but it will be a long time before much of a leaven of graduates could be assigned to them or encouraged to take an appointment in them.

Proportions between well-qualified and poorly-qualified staff were found to vary widely between different districts and regions. In the case of women teachers, such disproportions might be attributed to the disinclination of most women teachers to take posts in outlying or rural schools; but there appears to be little or no such disinclination on the part of men teachers. (The high cost of living in Nairobi helps account for this.) The disproportions which exist must, then, be attributed to the ineffective operation of the official machinery for allocating teachers. If the Teachers Service Commission (which legally bears ultimate responsibility in this matter) is to function effectively it must have both adequate information on the number of teachers currently on the staffs of individual schools and be free to assign teachers on the basis of professional considerations relating to school program and teacher satisfaction. Wide variations in the teacher "mix" between schools suggests that this has not always been the case in the past; and this clearly poses a problem with which only Kenya itself can cope. We must take the position that neither governmental donor agencies nor volunteer agencies would be well advised to step in and offer teachers if they are merely filling lacunae which an effective policy for the placement of local personnel could fill. We must also take the position that until the Ministry of Education or the Teachers Service Commission undertakes the careful subject-by-subject, school-by-school survey of teaching strengths and shortages we referred to above, it will be difficult to plan the production of teachers by subject field in an intelligent manner, much less regulate the production of teachers by level of qualification.

We have suggested above that a number of factors often combine to create a less-than-optimum teaching situation when the school systems of rapidly developing countries are localizing their teaching cadres. One such factor is that school staffs regularly include relatively large numbers of teachers with only a few years of teaching experience. Table 32 on the next page, based on data gathered in 22 colleges and secondary schools and covering a three-year period, reveals not only that large numbers of teachers in the sample had relatively little experience but that this number was increasing in the period considered.

Table 32. TEACHERS WITH LESS THAN 5 YEARS TEACHING EXPERIENCE (22 SCHOOL AND COLLEGE SAMPLE)

SCHOOL	1966	1967	1968	3 YRS. TOTAL
1. Thomson's Falls	5	8	8	21
2. Kaaga	3	5	1	9
3. Tudor	4	4	8	16
4. Eastleigh	5	10	8	23
5. Kamusinga	12	12	13	37
6. Bishop Otunga	4	8	14	26
7. Uasin Gishu	4	8	9	21
8. Malava	-	3	-	3
9. Dagoretti	9	9	9	27
10. Kericho	10	10	9	29
11. Siriba College	-	1	1	2
12. Limuru	12	7	13	32
13. Aquinas	4	2	2	8
14. Mukumu Gill's	4	4	7	15
15. Maseno	13	11	14	38
16. Nyeri	5	5	9	19
17. Asumbi T.C.	5	5	5	15
18. Khamis	18	22	26	66
19. Kangaru	18	18	18	54
20. Nyabondo	1	3	3	7
21. Kisii T.C.	1	2	4	7
22. Alkejuado	9	18	15	42
TOTAL PER YEAR:	146	175	196	517

Inexperience is, of course, a price which must be paid for rapid localisation; and in and of itself inexperience need not cause concern.

In the schools and colleges of Kenya, however, inexperience is coupled with a second phenomenon: rapid turnover of teachers. This is also clearly illustrated by the data gathered by Dr. Indire and covering the same three year period, 1966-1968. Fortunately, however, there appears to be a declining turnover on the staffs of teachers colleges. This was not true in the secondary schools during the period as is revealed in the following table.

Table 33. TURNOVER IN KENYAN SECONDARY SCHOOLS AND TEACHERS COLLEGES, 1966, 1967, and 1968.

A. Kenyan Secondary Schools in Sample:

	1966	1967	1968	3 Year Average
Total Number of Schools	48	49	50	49
Total Teaching Staff	668	733	805	735
Total Staff Leaving	154	185	206	181
Percent Annual Turnover	23%	25%	26%	25%

B. Kenyan Teacher Training Colleges in Sample:

Total Number of Schools	7	7	7	7
Total Teaching Staff	114	135	151	133
Total Staff Leaving	39	41	32	37
Percent Annual Turnover	34%	31%	21%	28%

Turnover is, fortunately, not generally attrition from the profession. This is clearly revealed by the reasons which school administrators ascribed to those who had left the schools and colleges and which are presented in tabular form in the next table.

Table 34. REASONS TEACHERS LEAVE SCHOOLS AS REPORTED BY SCHOOL PRINCIPALS AND HEADMASTERS, 1966, 1967, and 1968 (totals)

	Training Colleges			Secondary Schools		
	1966	1967	1968	1966	1967	1968
Total Teaching Staff	114	134	151	668	733	805
Total Staff Leaving	39	41	32	154	185	206
Reasons:						
Transferred to Other Schools in Kenya	5	8	5	40	40	40
Transferred to Non-school Ed. Activities	4	8	2	--	--	--
Left to Continue Studies in Kenya	2	1	2	13	25	25
Left to Continue Studies Outside Kenya	1	0	2	9	11	4
Completed Contract (or Volunteer Tour)	8	6	6	37	33	47
Retirement/Death	1	0	1	5	6	7
Other	18	18	14	50	70	83

These figures not only indicate that turnover is to only a minor extent attrition but point to a youthful teaching force in which further study, presumably leading to advancement, is a major factor in turnover. It is, however, teachers in the established secondary schools who are going on to further education. Of 75 teachers for whom further study was reported as a reason for leaving, 54 teachers were from established secondary schools, 7 from new secondary schools, 8 from Harambee Schools, and 6 from Teachers Colleges.

The retention of local teachers in the profession is largely a function of the salaries, the conditions of service, and the opportunities for advancement which exist within the profession. The creation of the Teachers Service Commission, which became the employer of almost all Kenyan secondary level teachers with effect from July, 1967, was intended to ensure that teachers were in fact treated justly and well. The new Ndegwa Commission salary scales which have gone into effect from July, 1971 appear to ensure that teachers are treated equitably in comparison with civil servants. Responsibility allowances for headmasters of secondary and technical schools are reasonable if not generous, taking into account the number of teaching posts in the school, the number of students in or beyond the final year of preparation for the School Certificate, and special problems of boarding schools. Other responsibility posts

are also recognized by responsibility allowances. In certain specific hardship areas, Frontier Allowances are paid to teachers who are not normally residents of those areas. Teachers further enjoy a free Government pension scheme. Accomodation for teachers, which has been a problem at many schools, and the high cost of living in Nairobi and other larger towns, which penalized the S1 diplomate teacher who lived in the capital or the other towns, particularly Mombasa, should now largely disappear or become less in the light of the new salary scales and the proposed housing allowance. If postings can be regularized, teachers paid on time, and promotion channels kept open for the advancement of persons on the basis of merit and qualifications, there should be even less inclination for teachers to leave the profession than there has been in the recent past. As indicated in the data given above, the situation in respect to the stability of teaching staffs is less unfortunate for the long-term than is generally believed; for while turnover is still high, most of this is a result of the extensive use of expatriates and the commendable desire of Kenyan teachers to receive more education.

A further condition for maintaining the morale and effectiveness of school and college staffs is, of course, that the schools and colleges be well-administered. Kenya is moving gradually toward the localization of school administration, and there should not be any need for expatriates to be called upon to serve as principals or headmasters of schools and colleges other than in the occasional Harambee school which is looking for help. Most of the Kenyans who are administering schools, furthermore, possess good "paper qualifications". Of 56 schools and colleges which Dr. Indire surveyed in 1969, 46 possessed graduate headmasters, two were employing P 1 teachers and one was relying upon a P 2 teacher. The less well qualified headmasters were, of course, principals of Harambee schools. In the past, the well established secondary schools have been the chief training ground for school administrators. As teachers in these schools normally held sound academic degrees, it is not surprising that they should be sought out to become headmasters and principals. While there is no gainsaying the advantages to a headmaster of having taught in a well-run school, such experience is again only part of the background which the headmaster needs. Increasingly schools and colleges need administrators who are competent in a wide range of tasks, including tasks which affect the relationship of a school with its surrounding community. There is consequently a pressing need for the provision of post-degree courses in Kenya for the education of secondary school headmasters and teacher training college principals. This is clearly an urgent task for the Faculty of Education at the University.

PROJECTION 8. ESTIMATED NEW WELL-QUALIFIED (S1 AND DEGREE) KENYAN SECONDARY LEVEL TEACHERS LESS APPROXIMATELY 10 PERCENT TO HARAMBEE SCHOOLS (1)

Year of Output	University of Nairobi (Degree)	Other Universities (Degree)	Kenyatta College (S1)	K.S.T.C. (S1)	Egerton College (S1)	Kenya Polytech-nic (S1)	Other S1 (4) or Equivalent	TOTAL NEW WELL-QUALIFIED KENYAN SECONDARY TEACHERS(-Upgraded)
1970	78	45	350	40	40	0	10	565
1971	89(2)	47	415(5)	119	40	10	10	730
1972	140	47	415(5)	144	40	29	10	825
1973	230	30	345(3)	144	40	31	15	835
1974	275	20	310(5)	144	60	26	20	855
1975	320	22	400(5)	168	60	30	20	1040

Notes: Figures for 1970-1973 are based on actual enrolments in most cases. Figures thereafter are estimates as to probable enrolments.

(1) Although we believe at least 10 percent of newly well-qualified teachers should be routed to harambee schools, we have allowed for a lesser number inasmuch as many S1 and P1 teachers who are taking B.A. and B.Sc. degrees without education will enter teaching, for current Ministry regulations regard such teachers as degree holders with professional qualifications. Similarly P1 teachers securing the Advanced Level Certificate receive S1 qualification.

(2) Figures for 1971 are nearly actual and include P.G.C.E. candidates.

(3) Kenyatta College admitted a smaller class in 1971 due to limited accomodation for teachers in preparation. Enrolments at Kenyatta College will increase to 300-400 if the Form V program at the College is discontinued in the future.

(4) Many P1 teachers sit for the Advanced Level Certificate. Those who pass are classified as S1 teachers. We have kept this figure small in order to count for the 10 percent deduction mentioned in Note (1) above.

(5) Many teachers complete their course well along in the secondary school year. Should a degree begin at Kenyatta College in 1972, actual production of approximately 100 teachers per year may be delayed up to two years.

SECTION IV. PRINCIPAL PRIORITIES, PROJECTIONS AND RECOMMENDATIONS

During the period immediately prior to and following Independence, Kenya has engaged in a process of extremely rapid expansion of education at all levels. Development at the secondary level, with which this report has been principally concerned, occurred not only through the aided system (maintained and assisted schools) but, where development of aided schools has been insufficient to satisfy social demand, through the very rapid growth of unaided schools, chiefly Harambee or self-help schools. These schools have served many of those who completed primary school but could find no place in aided secondary schools. Both the aided and the unaided schools make up the "system" of secondary education in Kenya, and such visible signs as Ministry statistics and the new Development Plan reveal that aided and unaided schools are increasingly considered as brothers in the educational family. In a sense the Harambee Schools, even now that growth in their enrollments appears to be levelling off, provide the growing edge of Kenyan education; for it is through assumption of responsibility for classes in these schools that the Government has been able to pursue at modest capital expense its policies of expansion of educational opportunity and dispersal of schools to provide greater equality in educational opportunity. We would argue that external providing agencies, in viewing Kenyan education, avoid making any invidious distinction between "Harambee Schools" and "maintained or assisted schools" in considering the contributions they can or should make to Kenya; for even the academically modest beginnings which Harambee schools have necessarily demonstrated reflect a commitment to self-help which the process of development requires as urgently as it requires specified quantities of manpower. Moreover, these schools are confronted with the enormously difficult task of improving the academic quality of education they provide even while they identify profitable "new directions" to pursue. Lacking "new directions" and more appropriate curricula, their " development" can amount to little more than quantitative growth. Failure to provide good education, and increasingly relevant education, in the Harambee Schools could represent both a waste of financial resources (and loss of local resources is no less serious than loss of central Government resources!) and a loss of the spirit which is required to generate a better life for all the people. At the same time it is incumbent upon the Kenya Ministry of Education to help young schools become good schools, probably less in the sense of modelling their programs on that of the traditional "great schools" of Kenya than in the sense of finding new purposes and designing programs to suit these purposes. Such initiatives can best come from Kenyans, but there may be many expatriates--if the right kinds can be found--who for a few years can contribute the strengths which their own differing perspectives and their varied professional experiences provide. Until or unless Kenya is willing to route a reasonable share of its own most ingenious and well-educated teachers into Harambee Schools, however, it is likely to prove relatively unproductive to assign expatriate teachers (even enthusiastic volunteers) to teach in them. The principles

upon which such assignments are made must be publicly understood and conscientiously applied.

As the statistics which have appeared throughout this report have made apparant--statistics which are summarized for recent years in appendices to the report--the expansion of Kenyan schools has occurred only because it has been possible to count upon large numbers of non-citizen teachers. Now that most (not all!) types of manpower needs in the economy are being met or promise to be met by the output of secondary schools and institutions of further education, Kenya must expect to find increasing difficulty in recruiting expatriate teachers who are subsidized by external agencies; and even with its improved salary scales, the Ministry is likely to find it difficult to recruit teachers from those countries in which the most rapid strides are being made in the teaching of modern mathematics, modern science, or good English (still the medium through which most school learning takes place in Kenya.) It thus become important that in the half-decade immediately ahead every effort be made to ensure that the recruitment of persons by Kenya and the identification of persons by providing agencies take on an increasingly specific focus and that the deployment of teachers be so efficiently handled as to ensure reaping every possible benefit from their services. This suggests that our report might appropriately conclude not only with a projection of likely total needs but with some consideration of the priorities among needs and the conditions which are apt to ensure maximum efficiency in using overseas staff. This final section attempts to do this.

Projected Gaps in the Kenyan Teaching Force and Priorities in the Provision and Use of Expatriate Teachers

Although the absolute number of graduate Kenyan teachers has been growing and the percentage of Kenyan teachers in the total cadre has mounted rapidly as S 1 teachers from Kenyatta College and Kenya Science Teachers College have become available, the percentage of Kenyan graduates in the secondary school teaching force has not only grown very slowly but has varied widely from one teaching field to another. Thus, while roughly one fourth of the graduates teaching in Kenya were citizens by 1970, only some 15 percent of graduates teaching science were citizens. The prospect of further rapid expansion of Kenyan secondary education, even if this is accomplished in part by an increase in the size of classes and by the use of more economic teacher: class ratios as proposed in the Development Plan, means that serious continuing shortages of graduate science and mathematics teachers must be anticipated during the period with which this report is concerned. The base line from which projections must be made would include, as of 1970, almost 500 non-citizen secondary level teachers on local terms (most of whom would be Asian), over 650 British on O.S.A.S. terms, over 110 volunteer teachers from Volunteer Service Overseas and the Peace Corps, and some 50 teachers on other types of arrangements. Although the projections on the following pages indicate that the number of expatriate teachers in the schools can be expected to

decline between now and 1975, the time required to build up a local supply of science graduate teachers (especially when the competing demands of industry and government are taken into consideration) indicates that Kenya will continue to request overseas science and mathematics teachers in sizable numbers. Furthermore, the likelihood that a considerable portion of the secondary school time table will necessarily be devoted to English language instruction suggests there will be further requests for teachers of English, especially teachers for whom this is a mother tongue.

In summary, we anticipate there will be a sizable call to 1974 for teachers in order (1) to permit further expansion of the school system, (2) to compensate for imbalances which still promise to exist between the production of degree and non-degree teachers, and (3) to right even more critical imbalances in the production of teachers as between teaching fields. Making up shortages or filling gaps remains necessary in the immediate future; but our own judgement is that the more important contribution of providing agencies in terms of long-term development will be made by providing opportunities for advanced, specialized study for those who will be involved in the training of secondary level teachers and lecturers and by providing experts who can work alongside new teacher educators or who can serve in their stead while they are securing further education in Kenya or abroad. In respect to external assistance however, we also believe that this study has documented the following points:

1. During the next four years there will be further need for graduate teachers qualified to handle examination classes and upper secondary school classes (Classes IV, V and VI) in the following fields: science (especially the physical sciences), mathematics, technical subjects, English, and (probably) French. Such teachers will preferably possess professional training. Where inexperienced teachers or those without professional training may be employed, it will be important that they be deployed in such a way that they can call upon the assistance of experienced and professionally trained colleagues.

2. It is highly desirable that as the total number of expatriates who are required declines, those who are employed be offered insofar as possible contracts which will permit a longer period of service at a given school. (We believe the conditions in Kenya are sufficiently attractive professionally to make a normal contract of at least three years possible.) It appears to us that the present two-year contracts mitigate against the effective use of such teachers as are provided or recruited.

3. It is important that where teachers qualified to handle such modifications in the curriculum as "modern" mathematics or "modern" science are found, adequate provision be arranged for Kenyan teachers to learn newer approaches and that, wherever possible, provision be made for the experienced teacher to work alongside the new teacher who may feel ill-at-ease in the revised methods of teaching the subject.

4. Although Kenya, as most African countries, must generate employment for most of its population in rural areas, the growing manufacturing and service sectors of the Kenyan economy (and certain processing industries necessary to capitalize on Kenya's agricultural potential) will require persons with technical or industrial skills. This not only underscores the need for technical education but suggests unfortunately that there will likely continue to be attrition of Kenyan technical teacher educators from the profession. Nonetheless we feel it is urgent that the inefficiency this attrition represents not discourage overseas agencies from providing technical teacher educators during the decade ahead. To the extent that the provision of such educators can be accompanied by counterpart arrangements or by arrangements which will permit Kenyans to participate in and study modern technical processes overseas as well as in Kenya, the contribution of such technical teacher educators will be enhanced.

5. The preparation of Kenyans to provide leadership and assume administrative positions in education remains a top priority for the Kenya Government and the University. We would nonetheless suggest that there may be a need for inputs from other nations not in terms of school principals or headmasters but in terms of those who have had some familiarity with school finance, with developing community programs which involve clients other than school youth, with preparing new instructional materials, with evaluating school programs through such techniques as follow-up studies of school products, or possibly in certain specialized posts in the Inspectorate. If the last were to be provided, however, it would be important that the persons made available be less concerned with the "policeman" functions of school inspection than with the "leadership" or "involvement" dimensions which characterize all good supervision.

It is within this framework that we indicate our projections as to the probable shortfall of Kenyan teachers on the following pages. The number of expatriates who are "needed," obviously, will be in part dependent upon the graduate/non-graduate ratio which Kenya decides will be imperative during the remainder of the period of rapid secondary school expansion. Estimates which we have received range from 1 graduate teacher to 2 non-graduates at one extreme to 2 graduate teachers to 1 non-graduate at the other. The actual ratio justifiable will depend not only upon the number of schools whose programs are "completed" to the "O-level" or "A-level"

PROJECTION 9. PROJECTED FURTHER DEMAND FOR QUALIFIED TEACHERS FOR SECONDARY SCHOOLS AND TEACHERS COLLEGES (AIDED SCHOOLS ONLY)

	Projected Staff Needs						Projected Stock				
	Col. 1	2	3	4		5	6	7	8	9	10	11
School Year	Lower Secondary (Range)	Upper Secondary (Range)	Primary Teachers Colleges	Principals SS	Principals TC	TOTAL Project Need	Stock Well-Qual. Kenyans Prev. Year	Less 6 percent Attr.	Probable New Well-Qualified Kenyans	Total Well-Qualified Kenyans	Rundown Under-Qualified Kenyans	Expatriates Required
1970 (act.)	3090	130	420	300	24	3965	1150	-70	565	1645	250	2070
1971	3260-3280	140-150	450-470	310	23	4185-4235	1640	-105	730	2265	200	1725-1820
1972	3410-3460	160-170	460-480	320	22	4370-4450	2265	-135	825	2955	150	1265-1345
1973	3690-3780	180-190	475-500	330	21	4695-4820	2955	-175	835	3615	100	970-1105
1974	3870-4020	200-220	480-505	340	20	4890-5125	3615	-215	855	4255	50	585-820
1975	4010-4260	220-240	490-510	350	20	5090-5380	4255	-255	1040	5040	0	50-340

Notes on following page.

Notes to Projection 9.

Full-time teaching equivalents are used throughout. Estimates of needs, limited here to aided (maintained and assisted) secondary schools and to Teachers Colleges are based upon previous projections in the study as indicated below.

Column 1. Projected staff needs for lower secondary schools are based on enrolments in Projection 1. Estimates are rounded to the nearest ten.

Column 2. Projected staff needs for upper secondary schools are based on the projected number of upper secondary classes as presented in Projection 2. A teacher:class ratio of 1.5:1 is used. Figures are rounded to the nearest ten.

Column 3. Projected staff needs for Primary Teachers Colleges are based on estimated enrolments presented in Projection 3. A tutor:student ratio of 1:16 is used, a ratio which is more generous than that used in some studies in this series but which allows for in-service work in the consolidated colleges. Figures rounded to the nearest five.

Column 4. Projected needs for principals and headmasters allow for a somewhat arbitrary increase in the number of aided schools of 10 per year and a process of consolidation of teachers colleges to the 20 we considered reasonable in this report.

Column 5. Summation of staff needs in Columns 1-4.

Column 6. Persons holding degrees or S1 qualifications are included. We would hope that over time all degree holders who are teaching would be expected to possess teaching qualifications.

Column 7. An attrition rate of 6 percent from the previous years stock of well-qualified Kenyan teachers is allowed for. This rate of attrition is greater than that allowed for in the Development Plan but would make some allowance for teachers returning to school for higher qualifications.

Column 8. S1 teachers from Egerton, Kenyatta College, and K.S.T.C.; degree holders likely to enter teaching from the University of Nairobi; others receiving degrees or qualifications from East Africa or overseas. We have allowed for 10 percent of S1 or degree holders to enter Harambee schools.

Column 9. Calculated on the basis of estimates in Columns 6,7, and 8.

Column 10. Gradual upgrading of local staff is allowed for by estimating a decrease in 10 percent of the underqualified teachers per annum.

Continued - Notes to Projection 9.

Column 11. Expatriate requirements are assumed to be the gap between the projected need and the numbers of Kenyans (well-qualified and under-qualified) estimated in Columns 9 and 10. Expatriates will be particularly needed for upper secondary schools, notably in the sciences. The continuing need for science graduates from abroad is indicated by the fact that in 1971 there were only eight science students and no math students in the 159 students enroled in the three-year undergraduate degree program with education and only 15 science students and four mathematics teachers enroled in the P.G.C.E. program at the University of Nigeria. Actual demand for expatriates is apt to be larger than these figures indicate as many Kenyan teachers are produced well along in the secondary school year.

PROJECTION 10. PROJECTED FURTHER DEMAND FOR QUALIFIED TEACHERS FOR SECONDARY SCHOOLS (UNAIDED INCLUDING HARAMBEE SCHOOLS)

School Year	Projected Staff Needs (1)			Stock of Well-Qualified Staff (2) Previous Year	Less 10 percent Attrition	Probable New Well-Qualified Kenyans (Chiefly Diplomate Level)	Residual Needs: (Under-qualified or Expatriate)
	Teachers	Principals	Total				
1970 (Actual)	1745	500	2245	535	-55	65	1505
1971	1800	530	2330	545	-55	75	1765
1972	1850	560	2410	565	-60	90	1815
1973	1900	590	2490	595	-60	95	1860
1974	1935	620	2555	630	-65	100	1890
1975	2000	650	2650	665	-65	110	1940

(1) Projections are based on a continuing increase in the number of unaided schools of approximately 10 percent per year during the period under consideration, a percentage which has recently prevailed. Estimates on the number of teachers needed is based upon a teacher:pupil ratio of 1:30.

(2) Projections include a rather high number of well-qualified staff going to Harambee schools. Our estimate in this respect exceeds current policy and practice in Kenya. In 1970 the best evidence we have available would indicate there were 429 qualified teachers and 47 Kenyan graduates teaching in the unaided schools.

examination, but also upon the academic quality and ingenuity of the persons it is possible to attract into teacher education. The fact that the academic quality and potential of entrants into secondary teacher education programs is moving rapidly upward is one of the most encouraging of all omens with respect to the future of Kenyan education.

Recommendations of Primary Concern to Kenyan Authorities

Although the basic projections made earlier in this section indicated that there will be a declining but continuing need for expatriate support in some critical areas and that there will be certain types of related help which overseas agencies could continue to provide, it is clear that the quality of teaching in Kenyan secondary level schools in the future will be largely dependent upon the quality and the preparation of Kenyan teachers. The responsibility this entails has been accepted in principle by Kenya, and the Teachers Service Commission and the Kenya Government are committed to localisation. The creation of a number of programs for the preparation of secondary level teachers, usually phased so as to produce teachers by the time specialized facilities have become available in secondary schools, has been a major step toward localisation of teaching in even those teaching fields in which critical shortages often develop. As a second step, moreover, Kenya has, in what represents a major breakthrough in salaries policy, provided special recognition for those engaged in the preparation of teachers. (See Appendix K) and pp. 87-88 above. Nonetheless, we feel constrained to point to certain problems which are not yet adequately resolved and to indicate the directions in which we think solutions to these problems are to be found. It is in this perspective that the following recommendations are made.

1. It is not clear that the teaching force is yet being distributed with maximum equity and efficiency throughout the aided system. In part this appears to result from inadequate information or inadequate communication between individual schools and the Teachers Service Commission. Consequently, we recommend that a far more detailed survey of teacher needs in the schools, preferable subject by subject and school by school, be made to provide the data upon which to plan teacher production or upon which to make teacher assignments. Furthermore, in the posting of teachers, procedures need to be established which will ensure that the following prevail: (1) that teachers are posted to schools after consultation with school heads as to what their exact needs are; (2) that equity throughout the Kenyan school system in terms of the graduate/non-graduate mix be established; and (3) that improved procedures be worked out and implemented to ensure that teachers who are newly posted to schools receive their salaries promptly. Creating and using adequate machinery in the deployment of teachers is inevitably a difficult task but is nonetheless a crucial task if the morals of teachers is not to suffer or if good

people are not to be lost to the profession. This will likely require an increase in the establishment of the Teachers Service Commission.

2. It is also important that the entire question of the staffing of Harambee Schools be faced in terms of principles of equity, considerations of finance, and what is known about the importance of continuity and sound administration in developing good school programs. Although we recognize the value of the services of volunteer teachers who are posted to Harambee schools and that the challenge which they find in serving in such schools is stimulating to them and one to which they often respond well, we are concerned that an insufficient number of S 1 teachers and graduate teachers who might provide continuity and leadership in such schools are not finding their way into them. There is for example, at least presumptive evidence from some other African countries that the contribution of volunteer teachers is greatly enhanced if they are assigned to the same school as at least one experienced contract teacher. In any event, the whole question of the qualified teacher who goes to the Harambee School needs reconsideration; and the desirability to the Government of increasing its allotment of S 1 or graduate teachers to such schools seems urgent. It is also doubly urgent that in-service courses be provided regularly for Harambee School administrators and others concerned with Harambee School management. Many things can frustrate good teaching; it would be unnecessarily wasteful to overlook those which can be avoided through good administration. Finally, however, we must urge that the time has now arrived to reconsider the whole role of the Harambee Schools in the Kenyan Educational System. It is not clear that these schools should merely imitate or serve us as feeders for the aided schools; and any significant change in their purposes or programs will imply changes in staffing which it is important to foresee as soon as possible.

3. It is important that a post-graduate degree program be established for teachers who plan to enter educational administration. Although we do not believe that all training for administrators should occur prior to their assuming a post in educational administration, we do believe that any national system of professional education should provide for both pre-service and in-service training for educational administrators. This becomes especially crucial if more diversified schools are to be operated effectively. In this training we would, furthermore, stress the importance of administrators in Kenya understanding the problems and principles of pre-vocational and vocational education. In particular, we have spoken of using the facilities of Egerton College to develop a broader understanding of the potential role of the secondary school in its surrounding (often rural) community on the part of the administrator. Other facilities might be similarly used.

4. Good education is always based upon good communication. In periods of rapid educational expansion, when ministries tend to be overtaxed with the problems of keeping the machinery going, the problems of communication may be easily overlooked. Although we would hesitate to suggest any particular mechanism, we are convinced that Kenya still lacks adequate machinery for consultation between the Ministry and the schools--the principals, the teachers, the men in the field. Resolution of this problem should be high on the agenda of action for the Ministry. We heartily concur in the recommendation of the Ndegwe Commission to expand the Inspectorate, but we doubt if this will in and of itself solve the problem to which we here refer.

5. We fully endorse the principle that a share of the staffing of lower secondary school classes can and should be by non-degree teachers, and the establishment of S 1 programs which prepare teachers competent to teach in more than one teaching field is to be highly commended. The availability of many candidates holding good O-level qualifications makes a three-year S 1 course from this level particularly attractive; but we cannot recommend a one-year course from A-level qualifications as providing suitable professional preparation. Furthermore, the present serious imbalance between the production of teachers at the non-degree level and teachers holding degrees strongly commends the introduction of B.A. and B.Sc. (Education option) degrees with flexible degree structures which might permit the S 1 holder to secure later a higher qualification. If such a program is introduced, probably open to some S 1 holders immediately upon securing their qualification and to others after they have demonstrated exceptional quality in the field, it would be urgent that those who acquired the degree not be penalized in terms of salary vis-a-vis other degree holders. The effective use of human resources requires multiple routes to ensure that persons who have moved out of the mainstream which leads to higher qualifications not be perpetually excluded from re-entering that stream.

6. The genuinely important components in good teachers are sound general education, a high degree of professional understanding, and a sense of commitment. From this simple principle, however, several important generalizations flow. First, it is important that the professional component in all teacher education programs be given sufficient place in these programs. This has not always been the case in programs either at the University or in the Teachers Colleges in Kenya. Accepting students already possessing some or all lower secondary education should permit greatly increasing the importance of the professional component in Teachers College programs. (In particular, we would urge that increased attention be given to developing programs for early primary teachers--programs with a strong professional component including considerable practical experience.) Similarly, we believe that great importance should be attached to providing a sufficient professional component in all university and other post-secondary programs designed to provide teachers. Second, it is less important that teachers for the upper secondary schools be honours graduates than that they possess good professional preparation. Third, it must be recognized that at many

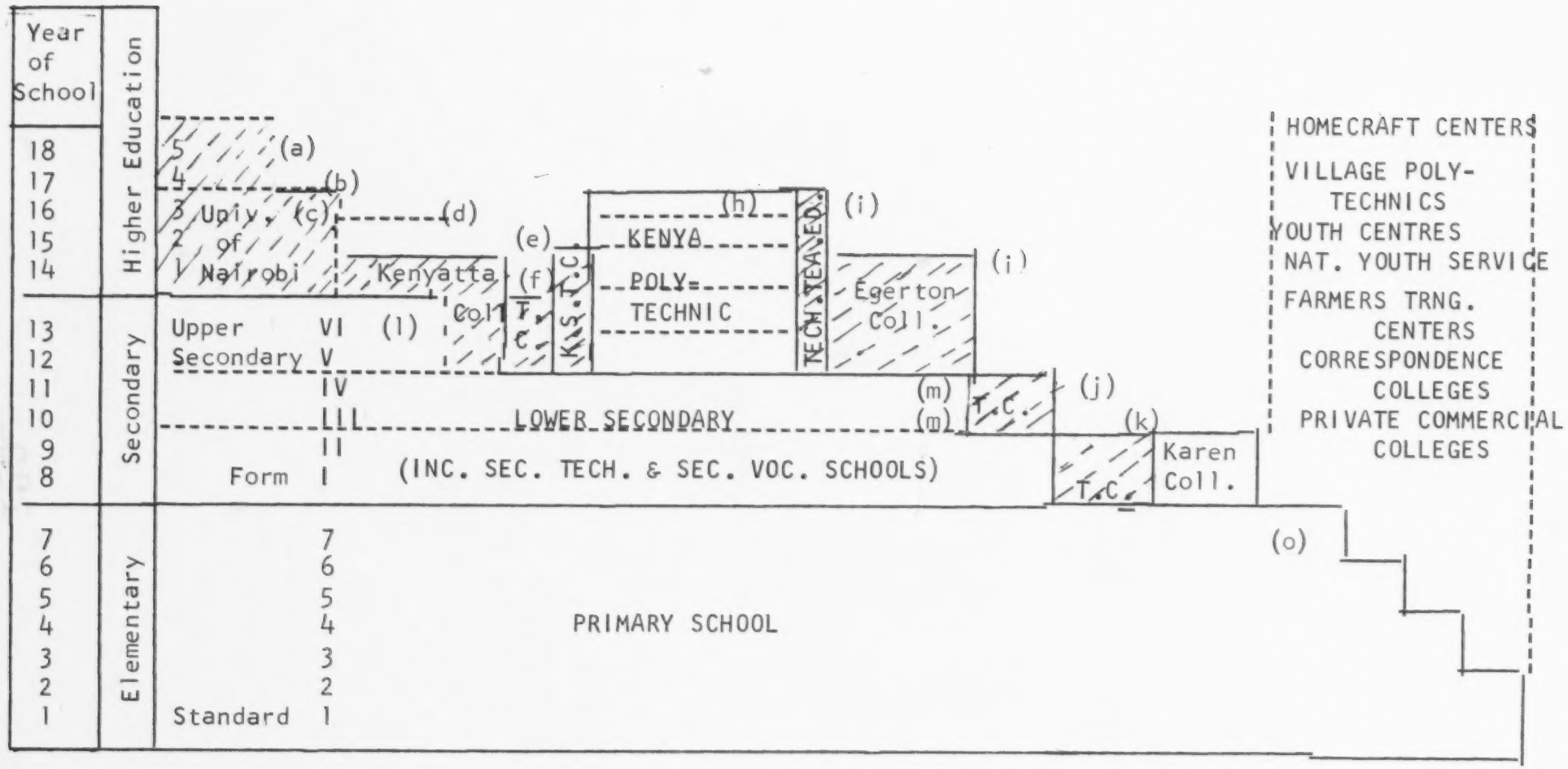
levels there is need for specialized preparation. As we have indicated above, concentration on teacher education for the early primary grades is crucial and here, if anywhere, the quality of the professional component in teacher education can make or break a program. Preparing tutors to carry out this function is one of the tasks of highest priority in Kenya. With Kenya attaching importance to upper secondary education as the route into universities, however, there may be a somewhat similar need to devote attention to the special problems of teaching at this level. Neither preparation for upper secondary nor for university teaching has generally received the attention it deserves from educators.

7. Finally, we are not convinced that all the problems in preparing and retaining vocational teachers have been adequately sorted out and realistically faced. Although Kenya now provides generous salary scales for teachers, and especially for technical teachers, it is most important that principles of equity be applied within fields. For example, we are concerned that agricultural teachers--if they are to do their job adequately--must often devote extra hours and vacation periods to work with communities or young farmers. Such work must be adequately recognized. It is also important that the size of teacher preparation programs and the length of teacher education programs be frequently re-evaluated. We have, inter alia, suggested that the size of the present program for the preparation of industrial arts teachers may be unrealistically small. We have also expressed concern that the length of programs in technical education may be longer than necessary. Although the experience of other countries may be relevant in reaching solutions to such problems of teacher education, it is the requirements in Kenya which must be the ultimate determinants.

To point to problems which develop in a growing educational system is a relatively easy task. Kenya has in the past decade expanded its educational system at a fantastic rate. It is underway on the difficult process of localizing its secondary teaching force in most academic and some nonacademic fields. It appears to have achieved what it has achieved without any tragic sacrifice in quality in its added schools. It has carefully examined the conditions of service of teachers and established salary scales which promise to reward professional teachers handsomely. These have been large tasks and large achievements. If there remain unsolved problems of communications, of allocating human resources between schools, and of developing human resources in optimum combinations, this is not surprising. Remaining problems are, we believe, important problems; but they are also problems which experience already gained should make it easier to solve than those which have been faced and solved in the immediate past.

APPENDICES

APPENDIX A: KENYA EDUCATION SYSTEM (1971)



Format adapted from Sasnett and Sepmeyer, Educational Systems of Africa.

Programs or institutions providing teacher training cross-hatched.
See notes on following page. Horizontal distances do not denote size of programs.

APPENDIX A (NOTES)

a. Masters Degrees. (Offered by the University in several fields, proposed in Education. Ph.D. offered in some academic fields.

b. Post Graduate Diploma in Education.

c. Bachelor of Arts and Bachelor of Science. (Each may be offered with Education.)

d. Bachelor of Education (Proposed).

e. S.1 Teachers Certificate.

f. P.1 Teachers Certificate.

g. S.1 Teachers Certificate.

h. Kenya Polytechnic offers programs on a full time, day release, sandwich and evening course basis, with entry points varying from C.P.E., Form II, E.A.C.E., to Form VI levels. Local J2 and G2 technical certificates, City and Guilds Craft, Technicians and full Technological Certificates, and qualifications of other international professional bodies such as the Royal Society of Arts, A.C.C.A., C.I.S., C.C.S., are awarded. Plans to award technical certificates under the auspices of the East African Examinations Council are under consideration.

i. Diploma in Agriculture (with S.1 Teachers Certificate).

j. P.2 Teachers Certificate.

k. P.3 Teachers Certificate.

l. Higher School Certificate or G.C.E. Advanced Level.

m. General Certificate of Education Ordinary Level of the East African Examinations Council.

n. Kenya Junior Secondary Examination.

o. Certificate of Primary Education.

APPENDIX B: GROWTH OF PRE-UNIVERSITY EDUCATION DURING THE 1960s (General)

B1. Schools by Type 1960-69

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Primary*	5,206	5,725	6,198*	6,058*	5,150*	5,078*	5,699*	5,959	6,135	6,132
Secondary #	91	105	142	151	222#	336#	400#	542#	601#	708#
Teacher Training	46	45	41	37	35	33	33	28&	28	27
Trade										
All Schools	5,361	5,896	6,390	5,415	5,415	5,455	6,140	6,536	6,775	6,879

Source: Ministry of Education.
* Including Intermediate Grades. From 1963 onwards Primary and Intermediate Schools have been amalgamated into full primary schools.
\# Secondary Technical Schools are included from 1964 onwards.
& The drop in number of schools is due to amalgamation of several schools.

B2. Pupils Enrolled by Type of School 1960-69

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Primary*	781,295	870,448	935,766	891,553	1,010,889	1,014,719	1,043,416	1,133,179	1,209,680	1,278,851
Secondary#	20,139	22,167	26,586	30,120	35,921	47,976	63,193	88,779	101,361	114,567
Teacher Training	4,089	3,897	3,927	4,119	4,849	5,355	5,474	5,904	6,634	7,145
Trade	1,712	2,094	1,443	1,202	1,043	1,247	1,349	1,479	2,036	2,344
Total	807,235	898,606	967,722	926,994	1,056,532	1,065,467	1,113,432	1,229,341	1,319,711	1,402,907

Source: Ministry of Education
* Including Intermediate Grades.
\# Secondary Technical Schools are included from 1964.

B3. Teachers In Service By type of School 1960-1969

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Primary Schools*										
Trained Teachers)	18,624	20,192	22,655	22,772	19,179	20,112	23,305	25,050	27,485	29,997
Untrained Teachers)					8,649	10,480	10,217	10,622	10,438	8,308
Secondary Schools#										
Trained Teachers)	1,188	1,316	1,392	1,530	1,490	1,866	2,160	2,470	2,743	3,260
Untrained Teachers)					510	628	844	1,583	1,902	2,000
Teacher Training Colleges										
Trained Teachers	384	310	373	354	316	366	400	424	468	515
Trade Schools										
Trained Teachers	n.a.	233	241	267	n.a.	133	125	94	123	145
Untrained Teachers	-	-	-	-	-	-	-	7	7	-
Total	20,196	22,051	24,661	24,923	30,144	33,585	37,051	40,250	43,166	44,225

Source: Ministry of Education
* Including Intermediate grades.
\# Secondary Technical Schools are included from 1964.

APPENDIX C.

Enrolment in Kenyan Primary Schools *
1960-1970

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Primary Schools:											
Standard I	179,560	189,958	169,990	137,220	180,290	195,733	193,909	228,769	250,757	253,298	296,459
Standard II	161,538	168,572	166,270	138,678	144,786	165,754	166,110	183,634	207,755	224,649	241,458
Standard III	154,397	163,313	164,972	143,907	139,727	139,285	152,919	165,640	178,537	197,669	221,235
Standard IV	156,659	171,071	165,716	140,005	145,004	135,124	130,282	146,912	158,899	171,573	191,901
Standard V	45,384	75,457	128,726	124,644	134,031	126,428	120,850	124,832	132,701	142,680	158,082
Standard VI	36,734	44,058	70,747	112,836	122,603	122,517	132,714	136,848	134,247	141,785	154,603
Standard VII	29,870	35,525	41,972	62,510	114,408	121,269	146,192	147,544	146,784	150,647	163,851
Standard VIII	17,153	22,494	27,373	31,753	33,870	36,036	440	-	-	-	-
TOTALS	781,295	870,448	935,766	891,553	1,014,719	1,042,146	1,043,416	1,133,179	1,209,680	1,282,297	1,427,589

*Source: Derived from Ministry of Education Annual Reports.

APPENDIX D.

Secondary School Enrolments by Form
1960-1970

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Form I	6444	7245	9093	10214	12712	19015	24108	31805	35624	39836	41043
Form II	5643	5587	6883	8174	9122	12566	18503	26592	28467	33824	37339
Form III	4433	4586	5275	5829	7035	7760	11210	16880	19547	20637	24540
Form IV	3174	3953	4320	4791	5625	6784	7068	10756	14565	17279	19317
Form V	292	513	656	667	864	1130	1356	1622	1769	2068	2606
Form VI	153	283	359	445	563	721	948	1124	1389	1602	2010
TOTAL	20139	22167	26586	30120	35921	47976	63193	88779	101361	115246	126855

Source: Ministry of Education Annual Reports 1960-1970.

APPENDIX E: SECONDARY SCHOOL EXAMINATION RESULTS

1. Kenya Junior Secondary Examination, 1966-1968

	1966		1967		1968	
	Candidates	% Pass	Candidates	% Pass	Candidates	% Pass
Maintained Schools	1,941	38.9	3,778	54.5)		
Unaided Schools	5,174	25.6	10,433	41.6)	*19,650	24.6
Private Candidates	2,199	25.1	4,657	24.8	#10,562	11.4
All Candidates	9,314	28.3	18,868	34.5	30,212	20.0

& Source: Statistical Summary, 1970
Note: In 1968 analysis was done for Schools and Private candidates only.
* School candidates
# Private candidates

2. School Certificate and General Certificate of Education Examination Results, 1961-1968

	1961	1962	1963	1964	1965	1966	1967	1968
All candidates	4,335	4,710	5,534	6,182	7,353	8,036	12,222	17,247
CSC passes (%)	54.1	54.0	54.8	56.8	62.0	61.7	55.2	49.1
GCE passes (%)	12.3	12.5	9.4	7.1	21.1	20.8	20.3	32.4
School candidates	3,847	4,042	4,441	4,937	5,878	6,455	9,466	12,964
CSC passes (%)	57.2	59.6	61.8	66.6	71.9	72.3	67.4	59.0
GCE passes (%)	12.8	13.6	10.3	7.9	18.4	17.3	17.8	28.3
Private candidates	488	668	1,093	1,245	1,475	1,581	2,776	4,283
CSC passes (%)	29.3	20.7	26.4	17.9	22.4	18.5	16.6	19.1
GCE passes (%)	8.4	5.2	6.0	4.4	32.0	34.7	26.4	44.9

3. Cambridge Higher School Certificate Examination Results, 1961-1968*

	1961	1962	1963	1964	1965	1966	1967	1968
Candidates	182	349	441	445	584	756	946	1,197
HSC passes	124	161	241	241	272	348	398	714
HSC passes (%)	68.1	46.1	54.6	54.2	46.6	46.0	42.1	57.2
At least one principal pass number HSC	-	129	147	155	224	266	362	286

* Source: Kenya Statistical Abstracts, 1967, 1970
Performance of private candidates over most years is not available. In 1965, three out of 70, and in 1966 one out of 48, private candidates obtained HSC.

APPENDIX E. Continued

4. Results on all Examinations, 1969. School Certificate and Certificate of Education Examination, 1969 (All Schools)

Candidates	16,937	
School Certificate Passes	9,260	
Percentage School Certificate		54.56%
Certificate of Education	5,153	
Percentage Cert. of Educ.		30.4 %
Percentage failure		15.0 %

Higher School Certificate Examination, 1969

Candidates	1,494	
H.S.C. Passes	894	
H.S.C. Pass, at least one principal subject		59.83%

Kenya Junior Certificate of Education Examinations, 1969.

Candidates	38,210	
Number Passed	3,225	
Percentage Passed		28.3 %

APPENDIX F. DISTRIBUTION OF SCHOOL LEAVERS--(APPROXIMATES)

1. Estimates of Primary School Placement, 1965.*

	Urban School Leavers			Rural School Leavers			TOTAL ALL
	Boys	Girls	Total	Boys	Girls	Total	
Repeating in Primary schools	1,700	800	2,500	21,500	6,000	27,500	30,000
In maintained or assisted Secondary schools	800	400	1,200	8,500	3,300	11,800	13,000
In Private or Harambee Secondary schools	1,500	500	2,000	7,000	1,000	8,000	10,000
In Teacher Training Colleges (direct entry)	70	30	100	550	350	900	1,000
In Technical Training	500	---	500	500	---	500	1,000
In Commercial Training & other Training	400	200	600	300	100	400	1,000
Total in Schools and Training							56,000
In Urban wage employment	1,500	100	1,600	1,800	100	1,900	3,500
In Rural wage employment	300	---	300	3,200	500	3,700	4,000
Total in wage employment							7,500
Self-employed in Town	100	250	350	---	---	---	350
Active on Family farms	---	---	---	5,000	17,500	22,500	22,500
Self-employed rurally off farm	---	---	---	500	---	500	500
Total economically active							23,350
Unemployed in Rural areas	200	250	450	46,150	2,150	49,300	49,750
Unemployed in Urban areas	1,130	2,270	3,400	7,000	1,000	8,000	11,400
Total unemployed							61,150
TOTAL	8,200	4,800	13,000	102,000	33,000	135,000	148,000

* Source: Paul Fordham and James R. Sheffield, "Continuing Education for Youth and Adults", in Sheffield, James R. (editor) Education, Employment and Rural Development, p. 370.

2. Estimates of Form IV Placement, 1969. (Rado, Morgan, and Shepard).

Category		Number of Vacancies
Form V		2,300
Three-year courses		
Secondary teaching	510	
Technical training	450	
Agricultural	230	
Medical	560	
		1,750
Two-year courses		
PI teacher	830	
Agricultural	410	
Technical	390	
Social	20	
		1,650
One-year courses		
Fishing	20	
Secretarial	100	
Agricultural	50	
		170
(1) Total educational opportunities		5,870
(2) Direct employment (modern non-agricultural)		4,450
(3) Remainder (Unemployed, self-employed, working on family enterprise, agriculture, or semi-skilled wage employment, or take training in privately-operated courses)		
TOTAL (1)+(2)+(3)=1969 Form IV enrolment, citizens only		16,550

APPENDIX G: SUBJECT/PERIOD ALLOCATION IN LOWER SECONDARY SCHOOLS *

The following curriculum allocation in lower secondary schools, as employed in the Bergman/Williams study of teacher requirements in science subjects, was based upon an interview in the Ministry. Our own estimate would allow for more rapid introduction of practical arts subjects.

Subject	Periods/ Week	Percentage of Teacher Cadre Required Per Subject
English	8	17.8
Swahili	3	6.7
History	3	6.7
Religious Education	2	4.4
Music	1	2.2
Physical Education	3	6.7
Geography	3	6.7
Mathematics	7	15.6
Science	9	20.0
Agriculture, Commerce I.A., Domestic Science	6	13.3
	45	100.0

Note: The period allocation given here is taken from a meeting on Industrial Arts in the Ministry of Education on November 7. The periods allocated for Agriculture, Commerce, Industrial Arts and Domestic Science were proposed to be equalled shared by 2 of these subjects in Forms I and II and allotted to 1 of them in Forms III and IV. Our calculations assume the introduction of at least 2 of these subjects in all schools - a situation that, although ideal, will not be encountered in the decade under consideration. The figure given for teacher requirements in these subjects is thus a maximum figure.

* Source: Bergman, Olov, and David Williams: Estimate of Secondary Teacher Requirements in Kenya with Special Reference to Science Teachers. Nairobi, Kenya Science Teachers College, 1968 (mimeo.).

APPENDIX H . CURRICULUM IN SECONDARY VOCATIONAL SCHOOLS (1968)

SUBJECT	Periods per week (40 minute periods) 1st yr. (J1)	2nd yr. (J2)	3rd yr. Craft	3rd yr. (G1)	4th yr. (G2)
Mathematics	6	6	4	6	6
Science	6	6	3	6	6
English	8	8	4	7	7
Swahili	2	2	2	2	2
General Studies or Geog.	3	3	2	3	3
Technical Art	3	3	-	-	-
Physical Education	2	2	2	2	2
Building w/Shop Practice or Metalwork	6	6	-	-	-
Woodwork	4	4	-	-	-
Technical Drawing	5	5	-	-	-
Machine Shop Practice	-	-	-	7	7
Technology	-	-	-	2	2
Elec. or Building Practice	-	-	-	5	5
Engineering Drawing	-	-	-	5	5
Craft Practice	-	-	22	-	-
Craft Theory	-	-	3	-	-
Craft Drawing	-	-	3	-	-
TOTAL	45	45	45	45	45

The "Craft" stream is split and the following craft courses are given: Mechanical Engineering, Electrical Craft Practice, Motor Vehicle Engineering and Plant Mechanics. (This time table does not include the second year of the Craft option which is now a regular part of the program.)

In the Junior Technicians Course (G1 & G2) two fields of workshop practice are followed, Mechanical and Electrical Engineering or Mechanical Engineering and Building, depending on the school facilities. Thus, the student has two major avenues of employment as a technician. The courses are based on C & G J1, J2, G1, G2 but syllabus content has been extended to provide a greater depth of background and revised so as to better meet Kenya's needs.

APPENDIX I: PRELIMINARY PROPOSALS FOR THE INTRODUCTION OF BUSINESS EDUCATION CURRICULA IN THE GENERAL SECONDARY SCHOOLS. *

	Forms I & II	Forms III and IV		
	All Streams	Stream 1	Stream 2	Stream 3
English	8	9	9	9
Kishwahili) or French)	4	4	4	4
History	3	3	3	3
Georgraphy	3	3	3	3
Religious Knowledge	2	-	3	3
Phsyical Science	6	6	-	-
Biology	3	4	4	5
Mathematics	7	7	7	7
Art) or Domestic Science)	3	5	4	5
Music	1	-	-	-
Physical Education	2	1	-	-
Commerce	2	3	3	-
Typewriting with Office Practice	-	-	5	5
	44	45	45	44

In forms I and II, all students would have a similar pattern with two periods of Commerce for general business knowledge. In Forms III and IV, Stream 1 and Stream 2 would carry this subject on for examination credit. Also in Forms III and IV, Stream 2 and Stream 3 would take Typing and Office Practice for examination credit.

Stream 1 would be the Science group, but would have practical subjects in either Art or Domestic Science with Commerce.

Stream 2 would be an Arts group with Commerce and Typewriting with Office Practice.

Stream 3 would be an Arts group with Domestic Science or Art, and Typewriting with Office Practice.

* Source: Ministry of Education, Inspectorate Section

APPENDIX J. CURRICULA IN VILLAGE POLYTECHNICS

Although the curricula in village polytechnics do vary considerably from one another, certain general patterns have developed. The following summary analysis, quoted from pages 9-10 of John Anderson, The Village Polytechnic Movement, indicates the general nature of the programs being offered.

> Whilst no final pattern has yet emerged, the polytechnics have, in general, begun to move toward a basic curriculum outline:
>
> 1. Skill Training e.g. masonry, tinsmithing, dressmaking
>   a) practical work,
>   b) theory (including necessary support subjects, e.g. elementary technical drawing).
>
>   In certain instances, some basic skills such as carpentry, are being supplemented by knowledge of say, masonry or tinsmithing, in order to give greater flexibility.
>
> 2. Agriculture
>
>   a) practical skills in growing crops - subsistence/cash;
>   b) knowledge of the local area and its potential;
>   c) a knowledge of agricultural marketing.
>
> 3. General Education
>
>   a) basic skills - Maths, English;
>   b) basic citizenship training - Civics, simple Economics related to rural development.
>
> 4. Business Knowledge (individual/co-operative)
>
>   a) simple bookkeeping, shop management, etc.;
>   b) committee procedure;
>   c) typing.
>
> 5. Recreation
>   a) sports, singing, dancing;
>   b) debating, drama, reading.
>
> 6. Spiritual Development/Character building
>   In most polytechnics some attempt is made to attempt this usually in a Christian context.
>
> These headings are by no means exclusive nor are they fully representative but in general they summarize the curricular frame in which polytechnic thinking is developing.

APPENDIX K. PUBLIC SERVICE AND TEACHING SERVICE SALARY SCALES (NDEGWA SCALES)

	Public Service (Professional Scale)		Teaching Service		
Degree Level	Good Degree with no Professional Qualification	Good Degree with Professional Qualification	S1 (Diplomate)	Degree Teachers (Secondary Schools)	Teachers' Colleges
			£702		
			735		
			768		
			801		
			834		
			870		
					£853 S1 Qual.
					906
					954
					1,002
					1,050
					1,093
					1,146 (on to £1482)
F	£1,128	£1,212	906	£906	1,194 Degree
C3	1,170	1,254	942	942	1,242
C1	1,212	1,302	990	990	1,290
	1,254	1,350	1,038	1,038 B. Ed.	1,338
		1,398	1,086	1,086 B.A., Dip.Ed.	1,386
		1,446	1,134	1,134 B.Sc., Dip.Ed.	1,434
		1,494	1,182	1,182	1,482
		1,554	1,230	1,230	to
		1,614	1,278	1,278	2,250 with experience and in responsible positions
			1,326	1,326	
				1,392	
				1,458	
				1,524	
				1,590	
				1,656	
				1,722	
				1,788	
				1,854	

Persons on the scales indicated normally have the opportunity to proceed to higher scales dependent upon experience and responsible positions.

Source: Report of the Commission of Inquiry (Public Service Structure and Remuneration Commission), 1970-1971.

APPENDIX L: TEACHERS IN KENYAN SECONDARY SCHOOLS, 1969, BY CITIZENSHIP. (Ministry of Education, Provisional Educational Statistics.)

1. Aided Secondary Schools (Maintained and Assisted).

Professionally Qualified	Kenyan Citizens	Non-Citizens
Graduate	226	1189
S.1	633	184
Other*	43	412
Total	902	1785
Not Professionally Qualified		
Graduate	60	390
HSC	72	26
CSC	25	5
Other*	8	16
Total	165	437

* The category of "other" teachers includes chiefly P.1 teachers, although a few technical teachers are included as well. Except for the technical teachers, those in this category should be regularly considered underqualified for secondary school teaching.

2. Unaided Secondary Schools (Chiefly but not Exclusively Harambee Schools).

Professionally Qualified		
Graduate	31	271
S.1	77	49
Other	328	55
Total	436	375
Not Professionally Qualified		
Graduate	46**	345**
HSC	354	140
CSC	431	59
Other	59	50
Total	890	590

** As unaided classes in Harambee Schools possess few graduate teachers other than volunteers, most graduates in unaided schools would appear to be in private or religious institutions.

3. All Secondary Schools

Professionally Qualified		
Graduate	257 (184)**	1460 (1348)**
S.1	712 (437)	233 (181)
Other	444 (449)	167 (143)
Total	1411 (1070)	1860 (472)
Not Professionally Qualified		
Graduates	426 (396)	735 (625)
HSC	106 (96)	166 (162)
CSC	456 (425)	64 (69)
Other	67 (65)	66 (61)
Total	1055 (985)	941 (917)

** Corresponding figures for 1968 appear in parentheses.

Total number of teachers in all Kenyan Secondary Schools in 1969 was reported as 5267.

APPENDIX M: EDUCATION IN CENTRAL GOVERNMENT ACCOUNTS (K£'000)*

	1964/65	1965/66	1966/67	1967/68	1968/69	Est. 1969/70
A. Recurrent Expenditures						
Total Recurrent	N.A.	N.A.	68,529	74,411	76,513	80,192
Educ. Recurrent	N.A.	N.A.	7,161	7,870	8,864	10,141
Educ. Percentage	N.A.	N.A.	10.4	10.6	11.6	12.5
B. Development Expenditures						
Total Development	N.A.	N.A.	16,355	19,575	23,689	28,471
Educ. Development	N.A.	N.A.	763	1,974	2,867	2,176
Educ. Percentage	N.A.	N.A.	.05	10.1	12.1	7.6
C. Total Expenditures						
Total	70,537	77,519	84,884	93,986	100,202	108,663
Education	6,810	6,894	7,924	9,844	11,731	12,317
Education Percent.	9.7	8.9	9.3	10.4	10.5	11.3

* Source: Statistical Abstract, 1970. Contributions to local authorities for specified services have been allocated to the appropriate functional heads, e.g., education.

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